Textile World

ESTABLISHED 1868

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Textile World

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Editor: DOUGLAS G. WOOLF

Off to a New Start

THIS country has embarked upon an experiment of the first magnitude. In our opinion, no piece of legislation passed within our memory has been fraught with more significance, or has promised to make more history, than the National Industry Recovery Act.

We are not trying to produce high-sounding phrases. We are merely trying to impress upon our readers the *breadth* of the implications of the new act. During the last week or two before its passage, discussion of it became tangled up in detail. A broader perspective is essential if a right start is to be made toward using the measure as a constructive instrument in the present situation.

With that thought in mind, we shall set down a few fundamental considerations which industries and their associations might well bear in mind.

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First, and most important, the bill was conceived for the purpose of putting people back to work. Everything else is incidental to that main purpose. Naturally, no legislation can, in itself, produce jobs for 14,000,000 unemployed. It can merely aim to create a set of conditions whereby jobs will become available.

Toward that end, it is planned to reduce schedules of working hours but to increase rate of pay per hour, so that increased purchasing power is provided —and more jobs created, in turn.

These two factors, then—shorter work-week and minimum wage—become the key-components of any program. Industries which have gone to Washington with fancy ideas of production-quotas and price-fixing, soon found they were off on the wrong foot. Whatever is permitted in that direction will be merely a means to an end, and not an end in itself.

In other words, anti-trust restrictions will be lifted insofar as is necessary to enable industry to check the destructive influence of the "chiseling fringe" upon wages and prices—and no further. But that is enough. In essence, it is what industry has needed for years; it is what it gets from the new act. Apparently, the method to be employed is to take the form of open-price agreements: not price-fixing, but public announcement of prices on past transactions, which will drive the chiselers out into the open.

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The next important consideration is that there is no intent to level off the inefficient with the efficient units. The only leveling contemplated is a uniform "scratch" position for all manufacturers so far as maximum hours and minimum wages are concerned. No contestant will be able to get a head-start by grinding out long hours at low wages, and thus setting a market level which the respectable majority cannot meet respectably.

Beyond that, there is every incentive to the efficient producer. In fact, as we pointed out last month, the premium on good management will be restored. During the last few years, everything has contributed to the survival of the unfit; that will be changed.

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If the above basic thoughts are kept in mind, there will be no cause for worry about details. None of us can prosper if millions of people are out of work and if prices of raw materials and of manufactured products are below production-cost. Correction of that situation is the need of the moment. If we permit apparent self-interest to delay such correction, we shall find that we have worked against our real self-interest.

Nor should temporary improvement in business dampen our enthusiasm. Most of the increased activity has been due to *anticipation* of the effects of the National Industry Recovery Act and allied legislation; if the promise is not performed, we shall slump back again to a position of hopelessness.

The textile industry, in its several branches, commanded the respect of Washington, and of business at large, for its prompt alignment with the spirit of the legislation while it was pending. The concept of an age-old industry, hoary with tradition and torn by selfish interests, has been shattered.

It is essential that this new psychology be applied to the utilization of the act.

The Editor Says:

from Washington

BEING of an inquiring mind, we decided to visit Washington before we finally put this issue "to bed." We found that others had had that bright idea. In fact, we doubt if we were among the first hundred thousand. Manufacturers, importers, wholesalers, retailers, trade association executives, economists, editors, had blazed the trail for us. Not to mention, of course, an army of job-seekers. Great for the railroads and for the Washington hotels. We hope the rest of the pilgrims got their money's worth. We did.

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IT wasn't so much in what official Washington told us. After receiving several hundred "visiting firemen," bureaucrats adopted a formula. They anticipated questions and failed to answer them in an extremely courteous way. "The industry bill has not been passed yet, you understand . . . What I say is 'off the record' . . . That's a very interesting point you bring up . . . Yes, indeed, I agree that needs consideration."

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BUT don't be misled. These bureaucrats—and we use the term descriptively, not satirically—are merely answering questions in their off-time. We heard of men in the Department of Commerce who worked from a 7.30 Sunday breakfast to a 7.30 lunch-dinner without a pause. Washington was organizing to administer the industry-recovery bill when (not 'and if') passed . . . Gen. Hugh S. Johnson had moved into the Commerce building—and each hour some of his staff were moving in. Offices were vacated and reoccupied in a matter of a few hours. He has been acquiring real men to help him. Nelson Slater and A. D. Whiteside are examples. The act will be administered intelligently under Gen. Johnson's direction . . . That is all one can—or should—ask in connection with legislation.

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NOR are we scared by the bugaboos which apparently frightened some manufacturing groups almost to the point of washing their hands of the whole business . . . Take the licensing provision. Manufacturers do not have to rush to Washington to ask for a "card" which will permit them to operate. This provision is merely a club; we believe—and hope—the Administration will not have to take this club from behind its back. But it is necessary—as past experience with "gentlemen's agreements" has demonstrated . . . Nor could we find in Washington the slightest intention of foisting trade-unionism upon industries which have not been so organized in the past. There is merely the desire that all groups should be represented: the majority group in industry and the dissenting minority; the great majority of labor, unorganized and inarticulate—and the organized minority. There will be clashes of opinion, of course; there always have been. But at least, in this case, they will be merely incidents in a battle waged for the common good . . . Defense against a flood of low-priced imports presents, we admit, a real problem. Responsible officials assured us that the new wording of the bill in this connection affords an answer. We hope it does. If it doesn't, prompt supplementary action will have to be taken.

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IN the last few hours of our stay at Washington, we secured an authoritative picture of the organization set-up planned to administer the act . . . At the top, the administrator (Gen. Johnson), responsible to the President . . . Below him, a coordinating board which will permit the utilization of Government officials affected by the act; this will include representatives of four Departments (Commerce, Labor, Agriculture, Treasury) and probably the Federal Trade Commission . . . Below that will be the staff departments, which will advise but not execute. These will include an Industrial Advisory Board, selected by the Secretary of Commerce; and a Labor Advisory Board, selected by the Secretary of Labor . . . Finally, there will be the operating staff; men skilled in business practice but not identified with the specific industries they are administering. For each major industry, there will be available the services of a man who knows the manufacturers' side and one who knows the labor problem involved. The viewpoints of both will be considered carefully by the operating staff. When decision is reached on a program, it will clear through the administration to the President. When approved it becomes the code for that industry; it is hoped it will have the same standing as the "law of merchants" in England.

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HERE are a few statements which we picked up in Washington and which interested us. We cannot reveal the sources but they are authoritative . . . "We have got to put a lot of men to work quickly, at more than a subsistence wage. It's a pretty good gamble that this bill will do it" . . . "The public-works section of the bill should put a million people to work by October. Shortening the work-week and raising wages should take care of three million more. Three million additional jobs should be created 'sympathetically'—in other words, by the increased purchasing power supplied by this re-employment. If we get this seven million by the fall, the depression will be broken" . . . "The licensing provision is just a form of protection for good industries against the few bad apples in the barrel" . . . "If the bill doesn't work spontaneously, it won't work at all; that is, a whole industry must *want* to do its job" . . . "If there is anything good in the bill, it will live long after the law is off the statute-books; if there is anything bad in it, it will die quickly" . . . That last, we feel, is extremely important. The legislation itself is temporary. The sanity of action it can develop should be permanent.

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JUST a few final thoughts . . . Accurate knowledge of costs, based on sound principles of determination, will be more necessary in the years immediately ahead than ever before . . . Plant management, plant modernization and merchandising alertness should come into their own again . . . Local industries, serving the needs of one State only, are not necessarily fostered by the act. It refers specifically to "transactions in *or affecting* interstate commerce." The italics are ours. We cannot think of many transactions which do not in some way "affect" interstate commerce. We would not advise investing in a local enterprise with the idea of "dodging" the law.

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TO close on a minor key, a government official was explaining to us that the Administration desired to work with associations representing broad divisions of industry, rather than with a multiplicity of small units. "For instance," he said, "we have no intention of appointing an administrator to deal with the polka-dot division of the neck-tie industry."

Textile Program

TO BE AMONG FIRST CONSIDERED AT WASHINGTON

By Paul Wooton
Washington Correspondent, TEXTILE WORLD

ORGANIZATION of the textile industry under the national industrial recovery act is to be among the first things undertaken. In the opinion of those in charge of the measure it is good administration to handle the big pieces first. For that reason first attention is being concentrated on the textile, oil, coal, automobile and iron and steel industries. These industries provide 70% of all industrial employment.

At an informal meeting of representatives of the textile industry with General Hugh S. Johnson in Washington, General Johnson urged the industry to work out the fundamental features of the code and get that approved so that an early start can be made. It is not necessary to submit a masterpiece as a start, he explained. Additions can be made later. It is the refinements and the relatively unimportant features of a code which make for delay. He wants all of these refinements worked out in due course, but he sees no reason why the benefits of the act cannot begin under a draft covering only the high points of the agreement. It is recognized that no industry has more detailed problems to settle than has the textile industry, but it is believed that these can be worked out gradually.

While it is realized that the success of the plan depends upon the willingness of industry to cooperate voluntarily and the support of public opinion, it is being made perfectly clear that what is termed the "chiseling fringe" of industry is going to be dealt with summarily. Minorities are not to be allowed to continue to block progress toward a more rational conduct of industry.

It is recognized that the outstanding need of the situation is to create buying power. If buying power is to keep pace with price increases a large amount of employment must be provided in the near future. Employment that is created by simply spreading work is seen as nothing more than a forced charitable contribution from those who have jobs. The recovery plan is aimed at higher wages, as well as shorter hours. This means that costs of production are to be increased. In order to compensate industry for this increased outlay the Government undertakes to rid it of the demoralizing effect of the competition of those who have little consideration for the human element in industry and for the ethical standards recognized by 85% of those in the industry.

The textile industry is being cited in Washington as an example of the demoralization growing out of that condition. It is being referred to as an industry operating at nearly 100% capacity, but at little or no profit. It is stated that prices are being held so low by those who sweat their labor as to make it impossible for other employers to pay decent wages. The competitor who acts like the bad apple in the barrel is to be handled summarily, but the whole plan is predicated on the theory that there will be no compulsion used in other directions. No reason is seen why whole-hearted cooperation cannot be maintained under the plan. The licensing feature is desired simply for the purpose of having the power necessary to control recalcitrants. The War Industries Board found little use for penalty clauses and it is fully expected that there will be little use for penalties in the administration of this act.

Under the administrator there are to be staff departments which will be headed by an outstanding man thoroughly familiar with the specialty but having no financial interest in that particular business. With him will sit a representative of that particular industry and a representative of the employees in that industry.

Limitations of one and two years written into the bill for the most part are not taken seriously. It is recognized that this legislation marks the passing of the era of free and unbridled competition and the entrance upon a planned economy with production kept in balance with consumption.

Attention also is being given to longer range planning than would be undertaken under this legislation. The Secretary of Commerce already has announced his intention of appointing an advisory committee from industry. This body would undertake such a study as that of decentralization of industry. Many claim that one of the lessons of this depression is that centralization is wrong. Henry Ford is quoted as saying that before many years will have passed the work now being done in his River Rouge plant will be divided among 500 plants scattered throughout the country. Such studies as this would be undertaken as a necessary supplement to the recovery act.

It is understood that the workability of the plan will soon be demonstrated, thereby making easier the almost superhuman task of applying the plan to every industry and every trade. Just as there is no thought of regimentation of labor under this act, there also is no thought of regimentation of industry. Business has been saying for years that it would be in the public interest to modify the anti-trust statutes and allow it to regulate itself. The new measure is seen as offering just that opportunity.

The public works title of the act simply is intended to provide some employment until the upward spiral of industrial employment begins to bite. Public works expenditures have been compared to crap shooting, in that you cannot stay in the game after your money is gone. For that reason the return of men to their normal jobs is regarded as the all-important objective.

Final authority and complete responsibility are to be vested in one man. There is no real responsibility in a voting control as would be the case were the authority vested in a board. Prominent in the plan of organization will be a board consisting of representatives of all existing Government bureaus that deal with the problems involved.

Textile Trade Associations

MOVE PROMPTLY TO ALIGN THEMSELVES WITH INDUSTRY RECOVERY PROGRAM

TEXTILE trade-association activity reached a new high during the last month. Without exception, every branch of the industry took prompt and decisive steps to align itself with the National Industry Recovery Bill which has been pending.

No gland-operation could have been more spectacular in its results. Organizations whose membership and finances had been sadly depleted through years of depression, acquired new life and vigor almost overnight. Individual companies which had withdrawn from their associations hastened to re-join. Others became members for the first time. Headquarters staffs have been strengthened. In several additional cases, paid executives have replaced honorary presidents chosen from the industry. Legal counsel, if not previously available, has been retained.

Textile manufacturers and selling-agents have thrown themselves into the movement with all the ardor of neophytes. They have participated in long hours of committee meetings. They have joined the national pilgrimage to Washington.

Naturally, the programs which they have conceived have had to be broad in scope and tentative in character. The final provisions of the legislation had been unknown. More than that, it has been realized that, even after enactment, the law will require further interpretation. Plans will have to be submitted to Washington for approval when the machinery has been set up. However, the path to future action has been prepared through the appointment of responsible committees which are empowered to take more positive steps as soon as feasible.

Although harmony has been the keynote in the industry during the last several weeks, it was inevitable that a few notes of discord should intrude. There has been apprehension over certain of the implications of the legislation. There has been fear of inequities which might develop through its application. There have been traces of old jealousies and antagonism. In the main, however, these have been lost in a widespread determination to help make the measure deliver what its name implies: Industry Recovery.

Briefly, and incompletely, the plans of the individual divisions of the textile industry are outlined below. In each of these, new developments are taking place daily. This summary purports merely to indicate the lines of action which have been suggested.

Wool

ACTIVE cooperation, at once the dream and despair of leaders of the wool industry in recent years, has been achieved in that division in the last few weeks. It has come under the auspices of the National Association of Wool Manufacturers, but with the participation of the former membership of the old American Association of Woolen and Worsted Manufacutrers. Thus, what might be called the New England and New York groups, the manufacturing and selling interests, have joined together on an equal footing.

In the same spirit of service which has impelled him to act as president of the National Association for eight years, Franklin W. Hobbs resigned in order that an executive might be appointed who could devote his full time to the arduous task ahead. The man chosen was Harold S. Edwards, long associated with Francis Willey & Co. and other concerns in the industry, and one-time president of the Boston Wool Trade Association. Since 1930, Mr. Edwards has been living in his native State, California.

Arthur Atwood Ballantine, nationally-known lawyer and public servant, has been named general counsel. Mr. Ballantine's most recent governmental connection was as Under-Secretary of the Treasury in the last year of the Hoover administration, a post which he continued to fill until May 15, last, at the request of Secretary Woodin.

A resolution passed at a meeting of the National Association empowered the directors, or committees appointed by them, to "do and perform any and all things that may be permitted or required by the provisions of the National Industry Recovery Act, or any other law having a similar purpose that may be enacted by Congress."

A committee to contact authorities at Washington was chosen, consisting of Franklin W. Hobbs, chairman, Addison L. Green, Lionel J. Noah, Richard J. Lennihan, Julius Forstmann, Col. Chas. F. H. Johnson, Rowe Metcalf. Messrs. Edwards and Ballantine accompanied the committee to Washington on June 1.

A general meeting of the wool industry was scheduled for June 20, at which groups representing the various specialized branches were to report their organization or start machinery to organize. This was on the basis that the industry should be broken down into working groups but should be unified for Washington contact.

Mr. Edwards will have his headquarters in New York. Walter Humphreys, secretary of the National Association, will spend most of his time there.

Cotton

COORDINATED action on the part of cotton manufacturers was assured through the selection of an industry-wide committee to represent them in governmental relations with respect to the administration of both the National Industry Recovery Act and the Agricultural Adjustment Act. The appointment of this committee followed conferences between Thomas M. Marchant, president of the American Cotton Manufacturers Association; Ernest N. Hood, president of the National Association of Cotton Manufacturers; and George A. Sloan, president of the Cotton-Textile Institute.

Those appointed to serve with Messrs. Marchant, Hood and Sloan are: Wm. D. Anderson, Robert Amory, Harry L. Bailey, Bertram H. Borden, G. Edward Buxton, Cason J. Callaway, Charles A. Cannon, A. E. Colby, Donald Comer, Stuart W. Cramer, B. B. Gossett, R. E. Henry, Gerrish H. Milliken, Frank I. Neild, H. Nelson Slater, Robert T. Stevens, and Robert R. West.

This committee has held several meetings in Washington and has conferred with officials. At the conclusion of its

first meeting, it was announced that the committee was unanimously agreed as to the desirability of increasing purchasing power and of spreading employment by a shorter work-week supported by a minimum wage. It was also reported to the meeting that cotton mills representing 22,000,000 spindles had already endorsed the 40-hour work-week plan, with a two-shift limitation. (Later advice brought this figure up to 24,700,000 spindles). In addition to the members of the committee, there were present Russell T. Fisher, secretary of the National Association; W. M. McLaurine, secretary of the American Association; and Paul B. Halstead, secretary of the Institute.

There has been much debate over the practical application of the program which will finally be adopted by the cotton industry. The question has been raised whether the Government would accept the 40-hour work-week recommendation or would insist upon a shorter week. Speculation has been rife as to what level would be recommended as the minimum wage; also, whether it would be a blanket figure for the industry as a whole or would be based on a recognition of variation in living costs in the different manufacturing centers. Then, too, discussion has centered around the possibility of checking price-cutting and of thus securing a fair price for the industry's products. At this writing, no one knows the answers to these questions.

Meanwhile, specialized groups in the cotton industry have taken steps to line up with the Administration's program.

The Mercerizers Association of America met at the offices of the Cotton-Textile Institute; endorsed the 40-hr. work-week plan; and announced through its president, J. S. Verlenden, that the mercerizers would cooperate with the Institute in formulating such other plans as may be necessary under pending legislation looking to self-regulation of industry.

Similarly, a special legislative committee of the Cotton Yarn Merchants Association met with George A. Sloan and advised him that the association had approved the 40-hour recommendation. Arrangements were made whereby the yarn merchants' committee and officials of the Institute will work in close cooperation in governmental relations. The Carded Yarn Group of the Institute had already appointed a special committee consisting of Charles A. Cannon, Donald Comer and Hyman Battle, to represent this group.

The Cotton Thread Association has taken steps to meet the new situation and has appointed an executive committee to formulate plans.

Silk

HAILING enthusiastically the proposed Industry Recovery Bill, broadsilk manufacturers representing the Silk Association of America and independent groups in New Jersey, Pennsylvania, New England and the South, met and appointed a planning committee to draw up a tentative code. The committee includes Henry E. Stehli, B. Edmund David, Otto Froelicher, G. H. Conze, Paul C. Debry, Jacob Widder, W. W. Stunzi, and Paolino Gerli, representing the Silk Association; Max Baker and Joseph Harrison, from the Paterson district; Mr. McGinley and Samuel Smith, representing the Pennsylvania group; and John C. Welwood, from the South.

In addition, meetings of many divisions have been held and committees are now at work gathering data, preparatory to drafting early reports. These groups include: ribbons, sewing silk and twist, tie-silks, silk and rayon converters, thrown silk.

The association has sent a questionnaire to the trade, asking opinions on working-hours in mills.

A committee of the Throwsters Research Institute is drafting a program calling for increased wages under a minimum-wage plan and decreased working hours, as well as a request that prices for throwing be fixed. It was stated by Dean Hill, secretary, that to increase wages and decrease hours makes it impossible for throwsters to continue at the present price levels for throwing. Prices must be fixed to assure a minimum wage in all localities, he declared.

This stabilization plan, although not complete in all its details, has been placed in the hands of throwsters, has been accorded majority approval, and will be submitted to Washington at the proper time.

Rayon

FORMATION of the National Rayon Weavers Association at a meeting held in Washington, D. C., was the outstanding development in the synthetic fiber field. Former Governor O. Max Gardner, of North Carolina, was appointed adviser. The organization will formulate a code of practice for submission in connection with the Administration's industrial program.

A steering committee was named consisting of Percy S. Howe, Jr., E. N. Morris, Melville Weston, J. Spencer Love and O. M. Mull. At a subsequent meeting in New York, permanent organization was effected, by-laws adopted, and a board of directors elected. The latter chose the following officers: President, Percy S. Howe; 1st vice-president, J. Spencer Love; 2nd vice-president, Charles Walcott. These, with Albert G. Myers and Hyman Frieze, comprise the executive committee. Chas. Whitney Dall was appointed secretary-treasurer of the association.

Since Governor Gardner has formerly been selected as adviser to the informal group of rayon yarn producers, there was speculation as to a possible connection between these two groups. No such connection exists other than the naturally close interest which the producers and consumers of the fibers have in common. As we went to press it was understood that formal organization of the yarn group was in process.

Similarly, the potential relation between the new group and the Silk Association of America has been debated. Paolino Gerli, president of the latter, extended an invitation to all those identified with the rayon industry to join his organization.

It has been specifically stated that manufacturers eligible for membership in National Rayon Weavers Assn. are "those who are running any portion of their looms on goods using in the warp all synthetic-fiber yarns"; and that "the invitation is only extended to the extent of such loomage as above described, it being understood that this is not to conflict with membership in other associations covering operations of other looms."

It was made clear at the organization meeting that the sole reason for the formation of the new association was the situation created by the industrial bill then pending. It was further emphasized that the group was anxious to cooperate with other organizations.

Hosiery

AFTER prolonged discussion of all phases of the industrial legislation, the directors of the National Association of Hosiery Manufacturers decided to set up a divisional committee in each of the recognized branches of the industry, which would aid in the formulation of a code for the industry. The chairmen of these committees are members of the Hosiery Industry Board of Control which, in addition, includes the directors of the association.

A joint conference of all the divisional committees, followed by separate meetings of the groups, was held in New York June 5-7.

Early discussion in the association centered on minimum wages and maximum hours, in the realization that these were the first phases to be tackled and that trade practices and marketing could be considered later.

An interesting aspect in this division of the industry is that involving the American Federation of Full-Fashioned Hosiery Workers. In answer to an offer of cooperation from Emil Rieve, president of the union, William Meyer, president of the association, stated, in part: "We recognize that about 10% of those employed in the hosiery industry are affiliated with trade unions and that their chosen representatives should be given proper consideration. As soon as we have assembled the necessary data on which to deal

intelligently with those phases that are of particular interest to our workers, and we have been able to develop a tentative proposal based on such facts, you may expect to have me communicate with you."

Earl Constantine, managing director of the association, has kept in touch with events at Washington.

The chairmen of the several advisory committees are: Women's seamless hose, James N. Weeks; woolen and cotton bundle, R. E. Jones; ribbed goods, R. Edge; infants' goods, J. Lee Bausher; men's half hose, Clyde Wilkins; women's full-fashioned hose, C. W. Gaddy.

Underwear

AN intensive program for determining the opinions of the membership at large and translating those opinions into a general code for the knitted underwear industry, has been carried out by the American Knitwear Manufacturers Association. The first step was a series of separate meetings of the eight groups comprising the organization in order that the chairmen of those groups might secure the ideas of their respective divisions. This was followed by a meeting of the chairmen, who comprise the executive committee; at this meeting, the association's policy was tentatively drafted. The next step scheduled was an industry-wide meeting for the adoption of rules and regulations.

At a meeting of woven underwear manufacturers, it was decided to form a Men's Woven Underwear Manufacturers Division of the association—and four committees were later appointed to carry out the purposes of this new group. Thus the American Knitwear Manufacturers Association now embraces both the knitted and woven divisions.

Membership is growing rapidly. Headquarters have been removed from Belton, S. C., to Washington, D. C.

In addition to the above plans for gathering opinions from the membership, Roy A. Cheney has sent a questionnaire to underwear mills asking for data on production control, maximum hours of labor, and minimum wages.

Outerwear

A PRELIMINARY industry-wide survey has been initiated by the National Knitted Outerwear Association so as to prepare full and correlated statistics to serve as a scientific basis for the industry's code of business procedure now being prepared for submission to Washington at the proper time.

In addition to statistics on production, sales, present-day minimum wages, and the hour-week and hour-day now in acceptance, the association is collecting information on the industry's idea as to the proper minimum wage and the proper hour-week and hour-day to be adopted in the future.

The directors and the recently appointed Industrial Recovery Committee of the association attended a joint emergency meeting in New York, to coordinate into a unified industry code the various programs in process of preparation by the divisional groups.

The National Knitted Outerwear Association has been organizing sportswear manufacturers selling both the wholesale and retail trade, men's wear manufacturers selling both fields, infants' wear manufacturers, and bathing suit and sweater manufacturers.

Finishers

ANOTHER organization to appoint a paid president to replace an honorary executive is the National Association of Finishers of Textile Fabrics. The new head is Albert L. Scott, president of Lockwood Greene Engineers, Inc., who succeeds W. L. Pierce.

Mr. Scott possesses, in addition to a notable background as an engineer, wide knowledge of the textile industry and close contacts in Washington. During the war he served as a brigadier general, chief of supply and equipment division of the Quartermaster Corps of the Army.

The association has adopted a general code of ethics and is eager to work with the Government to the best of its ability. The program, of course, will be shaped to conform with the plans of the cotton manufacturers' group, with whose interests those of the finishers are so closely allied. More detailed knowledge of the contemplated procedure was expected to be available after a meeting.

An extremely important feature of the new set-up is the fact that the commission finishers and corporation finishers are in complete agreement.

Membership has been increasing rapidly and now comprises approximately 90% of the cotton finishing industry, by volume. Silk finishers, with the exception of those who do cotton processing also, will not be included.

The following committee represents the association in dealings with Washington: G. Edward Buxton, Harry L. Stephenson, and Joseph K. Milliken.

A Tribute from Secretary Wallace

MOST conversations in Washington during the last few weeks have been "off the record." One statement made to us by Secretary of Agriculture Wallace, however, did not fall into that category. He gave us permission to quote him regarding his reaction to his contacts with representatives of the textile industry.

"My contacts with cotton manufacturers have been uniformly pleasant," he said. "They have shown an appreciation of the fact that their interests are merely a part of the whole—and that the good of the whole must be considered if any one group is to prosper permanently. The textile men have been willing and anxious to cooperate for the furtherance of the interests of industry, agriculture and labor—something which they've been prevented from doing heretofore, incidentally, by lack of means to cope with a recalcitrant minority."

As a piece of news, the new farm relief act has been overshadowed by the national debate on the industry recovery legislation. Nevertheless, Secretary Wallace and his staff have been hard at work getting the machinery in operation.

At a conference of cotton interests in Washington June 3, presided over by C. A. Cobb, cotton-production administrator, two spokesmen for the textile industry—Cason J. Callaway and W. D. Anderson—agreed with two southern Senators that immediate steps should be taken for the abandonment of more than 20% of this year's cotton acreage. Consequently, they endorsed the Bankhead amendment to the recovery bill which would appropriate $100,000,000 to the Secretary of Agriculture to be used for production control measures on basic commodities. It is understood, of course, that the method to be employed in the case of cotton would be government-leasing of land already planted, and abandonment of that part of the crop.

Some apprehension has been aroused over possible duplication or conflict between the agreement provisions of the agricultural act and those of the industry recovery act. The answer we got to this in Washington was that it will be up to the President to decide, in each particular case, what group of interests is most affected—and, consequently, what medium of administration is advisable. While knotty problems are anticipated, no serious conflict is feared.—*Editor.*

The Textile Schools

PRESENT THEIR 1933 CROP

FROM the returns that have come in up to time of going to press, it would seem that this year's crop of textile graduates measures up well in point of numbers with those of previous years. Comment on the quality of the crop is a delicate matter, but confidential advices indicate that it is up to the usual standard. One of the most encouraging features is the manner in which the crop is going into consumption. Demand from a textile industry that sees daylight ahead for the first time in years has been encouraging, and predictions are freely made that within a few months the carry-over of technically trained students will be considerably less than has been the case in several years. Latest reports are:

Lowell Textile Institute

After successfully weathering the storm of books and professors, nineteen students of the Lowell Textile Institute, Lowell, Mass., received the rewards of their efforts on June 6. Degrees of Bachelor of Textile Chemistry were awarded to twelve, degrees of Bachelor of Textile Engineering were awarded to four, two students received diplomas in Wool Manufacturing and one in Textile Design.

Cabot W. Penney, of Methuen, Mass., was the recipient of the medal presented by the National Association of Cotton Manufacturers, and Joseph J. Pizzuto, Jr., received the Louis A. Olney book prize in the graduating class.

It was announced that the scholarship of the Textile Color Card Association of America would be awarded for next year, although the recipient was not named.

Philadelphia Textile School

The graduation exercises of the Philadelphia Textile School were held June 8, at the school in Philadelphia, Pa. Diplomas and ceritificates were awarded as follows: 19 diplomas, and 38 two-year certificates, day school; 54 certificates, evening school. Among the 22 prizes awarded, the following are noted: Highest ratings, third year class, Sydney Lewine, Philadelphia, and Geo. W. Grives, Lacon, Ill.; National Association of Cotton Manufacturers medal to Lt. Albert E. Dennis, U. S. Army; TEXTILE WORLD prize in chemistry, dyeing and printing course to Henry M. Kaufman, New York; Textile Color Card Association scholarship to Edward W. Croner, Carlisle, Pa. The graduation address and presentation of diplomas were made by Director Edward W. France. The annual exhibition of students' work continues from June 8 to 30. The thirty-second annual reunion of the alumni was held June 8 and 9. Annual "cruise" took the alumni to Manufacturers Country Club on June 9 where baseball between married and single men and the association golf championship were played. The annual banquet was held at the Manufacturers Club, June 9, featuring an address by Henry T. Rainey, speaker of the House of Representatives.

Georgia School of Technology

Fifteen students of the A. French Textile School, Georgia School of Technology, Atlanta, received B.S. degrees, and one the degree of M.S. in Textile Engineering, at commencement exercises held on June 5. The class also included two graduates of the five-year, cooperative course. The class of 27 which was graduated last year represented one of the largest in the history of the institution and this year's class is considered normal in numbers.

The medal of the National Association of Cotton Manufacturers was awarded to A. D. Zellner and the medal of the Cotton Manufacturers Association of Georgia to J. A. Fife.

New Bedford Textile School

Graduation exercises of the New Bedford Textile School were held on June 9, with approximately the same number receiving diplomas and certificates as last year. In the day classes, four students received diplomas in General Cotton Manufacturing, two in Designing, and twelve in Chemistry, Dyeing and Finishing. Certificates for special courses in the day classes were awarded to sixteen students. In the evening classes, two students received diplomas for work in Carding and Spinning, and 125 received certificates.

The principal address of the evening was delivered by Congressman Charles L. Gifford, followed by the presentation of awards and remarks by William Smith, principal of the school.

Clemson College

A total of 31 degrees was awarded to graduates of the Textile Department, Clemson Agricultural College, on June 6. Of this number, thirteen students were in the Textile Engineering course, two in Textile Industrial Education, and sixteen received B.S. degrees in Textile Chemistry and Dyeing. All of the students in the engineering and industrial education courses have already secured positions and all but five in the chemistry course.

J. V. Walters, of Spartanburg, S. C., was awarded the medal of the National Association of Cotton Manufacturers for excellence in textile engineering. Mr. Walters has secured a position with the Lancaster (S. C.) Cotton Mills. E. W. Hollingsworth, majoring in Textile Chemistry and Dyeing, received the *Textile Colorist* prize for the best work in textile chemistry. Mr. Hollingsworth, together with C. R. Phillips, received honorable mention in the award of the Norris Medal, given each year in recognition of the highest scholastic standing in the entire graduating class of the college, whether in textile or other courses. The total enrollment in the Textile Department, all classes, for the last year was 177.

Bradford Durfee Textile School

With a grand total of 365 students receiving diplomas or certificates on June 2, the Bradford Durfee Textile School, Fall River, Mass., leads the list in numbers at press time. This compares with 364 students honored last year.

Diplomas were awarded to 28 in the day course and to 26 in the evening school. Certificates were received by 9 for completing courses in the day school and by 302 in the night school. Chemistry and Dyeing was the most popular course with those completing studies in the day diploma group, 14 selecting this branch for specialization.

The medal of the National Association of Cotton Manufacturers was awarded to Robert Martin Gregg.

North Carolina State College

Graduates of the Textile School of North Carolina State College numbered 22 this year, as compared with 27 last year. At the exercises, the medal of the National Association of Cotton Manufacturers was awarded to Dorrys E. Bennett of Greensboro, N. C.

CHANGING CONDITIONS IN TEXTILES PICTURED

AT S.T.A. *Silver Anniversary*

HISTORY and prophesy shared the spotlight in the annual meeting of the Southern Textile Association, held at Charlotte, N. C., May 26 and 27. The excellent program, marking the "silver anniversary" of the association's origin, presented an interesting review of the progress made by the organization during the first 25 years of its existence, while T. M. Marchant, president of the American Cotton Manufacturers Association, in an able address on "Changing Conditions in the Textile Industry," pointed to new concepts that may be expected to guide industrial activity in the United States during the next few years.

Frank K. Petrea, Columbus, Ga., president of the association, called the convention to order. W. M. McLaurine, secretary of the American Cotton Manufacturers Association, Charlotte, delivered an address of welcome that was thoroughly in keeping with the spirit of the occasion and urged the superintendents and overseers to maintain the flexibility of mind so necessary in properly understanding and applying the new principles of industrial management. H. H. Iler, Greenville, S. C., responded to the address of welcome.

Recent trends in wage levels, hours of employment, and child labor were discussed by Mr. Marchant, who was the guest speaker at the Friday morning session. He pointed out that no textile manufacturing State in the South permits the employment of children under 14 years of age in the mills. Those children between 14 and 16 years of age that are gainfully employed, he explained, are required by law to have some form of permit or affidavit, before they are allowed to work. He declared that on the payrolls of the Victor-Monaghan Co., of which he is the executive head, employing 3,000 workers, there is not a single person under 16 years of age.

Plans for Industry Rehabilitation

With reference to plans for industrial rehabilitation under Governmental supervision, Mr. Marchant said, in part:

"Economic principles that have hitherto controlled American industry are now facing far-reaching changes. The familiar principles of unrestrained competition, expressive of rugged individualism, are now being criticized by the highest departments of the Government as contrary to the public interest. In their place a new idea has gained amazing strength, which is that competition should be tempered to the interests of the group rather than the individual. Concretely, this means that business men should abolish practices that in the past have led to ruinous prices and profitless operations. I do not say that business interests have willingly followed such destructive practices. They have protested ineffectually for many years against the straightjacket of the Sherman Law, and the continued existence of that law has served to discourage industry from taking voluntary and individual steps to avoid overproduction and ruinous price cutting. To the great relief of all of us a more enlightened attitude seems now to be developing in Washington.

"In pursuance of President Roosevelt's plan for self-regulation of industry, the cotton manufacturers have recommended that the hours of labor in cotton mills shall not exceed 40 hours per week, and that the running time for productive machinery shall not exceed two shifts of 40 hours per week. This recommendation was placed before the President on May 10, 1933, with the initial support of members of the board of directors of the Cotton-Textile Institute, representing in the aggregate one-third of all the spindles in the industry. The Cotton-Textile Institute is now engaged in a canvas of the entire industry in an effort to determine whether this recommendation is acceptable, at least, to two-thirds of the cotton spindles, and I am glad to tell you today that more than two-thirds have already endorsed this recommendation. It should be noted in connection with this 40-hour week recommendation that a way has been left open, on recommendation of two-thirds of the industry, to increase or decrease the working time should it appear that the best interests of the public would be served.

"In addition to the vast powers over agriculture that are conferred upon the President in the Farm Relief Bill, this legislation embraces a very significant control of cotton manufacturing. Congress has given the Secretary of Agriculture, under the direction of the President, authority to enter into marketing agreements with cotton manufacturers, such provisions not to be held in violation of the anti-trust laws of the United States. Furthermore, the Secretary of Agriculture will be able to control cotton manufacturing through the issuance of licenses.

"Other provisions in the Farm Bill, as affecting cotton manufacturing, may be of interest. The Secretary has authority to place a tax upon cotton manufactures sufficient to make the raw cotton contained in cotton manufactures cost 12½ to 13c. a lb. If, however, such a tax proves to be too burdensome to bear, he has discretion to decrease or withhold it altogether. Furthermore, in the event of the imposition of a tax, the Secretary has the power under the Farm Bill to place a similar tax on fibers that compete with cotton. . . . The Bill also places a compensating tax on imports of cotton goods to protect domestic manufactures from foreign competition.

"I believe this brief review will help to give an idea of the momentous plans involved in the 'new deal.' In the first place, the Farm Bill, which has already become a law, brings cotton manufactures and the manufacturers of several other agricultural commodities under strict surveillance of the Government. Its grant of authority to license cotton mills and to make agreements with them, free of restraint of anti-trust laws, gives most sanguine promise of eliminating the relentless competition that has nearly destroyed the cotton textile industry."

Sketches Rise of Association

The early history of cotton and the development of cotton manufacturing in the United States were discussed by Frank K. Petrea, Columbus, Ga., in the annual address of the president, Friday morning. The last part of his talk was devoted to a summary of the back-

H. H. Iler, elected president, Southern Textile Association

Culver Batson, elected vice-president, S.T.A.

J. A. McFalls, elected chairman of board of governors, S.T.A.

ground of the Southern Textile Association. He said, in part:

"We should feel deeply grateful that back in June, 1908, a group of men, headed by George S. Escott, E. E. Bowen and David Clark, saw the need of an organization of some kind to help promote the progress of the industry and the men engaged in it. Mr. Clark, a man who has worked fearlessly and untiringly for our industry, has seen the growth of this organization over its entire life.

"We find that the men back in those days were engaged in problems of the kind that we are still trying to master. Not only did they discuss the problems of carding, spinning and weaving, but they were thinking about such problems as 'Development of Welfare Work in the Southern Cotton Mills,' 'Benefits and Opportunities of Mill Life,' 'Health of the Operatives,' 'Time Economy in Mills,' 'Industrial Education'—and other subjects too numerous to mention. For example, in 1910, our good friend, George F. Brietz, was on the program and in comparing the conditions of 1910 with those of 1880, he said: 'We notice many changes and improvements. Perhaps the greatest improvement is in the spindle itself. At that time (1880) the common spindle in use was about 12 to 14 in. in length, and weighed about one pound; had to be oiled twice a day at the collar and three times a week at its base or step, making 15 times each week that the spindles were oiled. Its speed at its best was about 5,000 r.p.m. The spindle of today (1910) weighs about seven ounces, runs from 5,000 to 10,000 r.p.m., and needs oiling only once in from three to four weeks. Then many of the running gears were left exposed . . . now, practically every running gear is enclosed.'

"There are in the records of the Southern Textile Association's accomplishments several outstanding projects or achievements worthy of particular note. Perhaps the first of these was the organization of the Southern Textile Exposition which is held every two years at Greenville, S. C. This movement was begun within the membership of the Southern Textile Association in 1913, and most of you remember that the first exposition was held in Greenville, Nov. 2 to 6, 1915. Another outstanding accomplishment was the formation of The Arkwrights, Inc., our splendid research body, of which Carl R. Harris is now the president.

"We have come a long way from our beginnings, and in viewing the accomplishments that have been made not only in the association, but among individual mills and by individual men, in seeing the marvelous equipment at our disposal and the tremendous strides that have been made in efficiency, some might feel that most of the work has been done. We are today facing a new era in the history of the industry and, as we shall turn into a new year, having passed our quarter century mark, we must keep forcibly in mind that 'the final state of improvement is never reached in any business, machine or person.'"

David Clark, editor of the *Textile Bulletin*, who was one of the original group organizing the Southern Textile Association, reviewed its history at the annual banquet Friday evening. The first meeting was held in Charlotte, in August, 1908, after which quarterly meetings were held for some time. All of the first meetings were featured by prepared addresses and, according to the speaker, there was seldom any discussion of the problems or information presented. The association was solely educational in purpose, but it was several years before it was decided to organize the special sections and divisions. Mr. Clark declared that, if he were asked to name the two men who have done the most for the Southern Textile Association, he would name F. Gordon Cobb and Marshall Dilling.

Past presidents of the association, who were seated at the speaker's table, were recognized and spoke briefly. These included F. E. Heymer, A. M. Dixon, F. Gordon Cobb, Marshall Dilling, J. O. Corn and T. W. Mullen.

Featuring the Saturday morning session was an address by W. S. Lee, vice-president and chief engineer, Duke Power Co., of Charlotte, on "The Importance of Accurate Cost Data." He pointed out that in one mill 25 years ago, without electric drives, it was found that there was an extreme variation in the speed of shafting of 16 to 18%. Later the same mill was equipped with electric group drives and the variation in speeds was reduced to only 3%. He declared that the industry must modernize its mills and bring them up to the highest point of efficiency.

H. H. Iler, mechanical engineer, of the Union Bleachery, Greenville, S. C., who has served the association as chairman of the board of governors and as vice-president, was elected president for the 1933-34 term. This was significant as bringing well-deserved honor to the master mechanics' division of which Mr. Iler was chairman for several years. Culver Batson, Lynchburg, Va., was elected vice-president, and John A. McFalls, Mooresville, N. C., was named chairman of the board of governors.

New members of the board of governors were elected, as follows: Walter Dillard, Jr., Augusta, Ga.; W. G. Young, Albemarle, N. C., Lyman A. Hamrick, Gaffney, S. C.; and D. F. Short, Lynchburg, Va. Marshall Dilling, Gastonia, was re-elected executive secretary.

Thursday evening at the Selwyn Hotel, in Charlotte, the associate members division of the association, which was organized last year, held a banquet. Emmett H. Steger, of the Sherwin-Williams Co., was elected chairman to succeed Lewis W. Thomason, of the New York & New Jersey Lubricant Co. Other officers elected were I. E. Wynn, of the Universal Winding Co., Charlotte, vice-chairman, and Junius Smith, of the *Textile Bulletin*, secretary. David Ovens, president of the Charlotte Merchants' Association, spoke on the value of personality in salesmanship. Recreational and entertainment features were provided at the meeting Friday and Saturday by the local textile machinery and supply firms who were hosts at a luncheon at the Myers Park Country Club Friday. Walter Dillard, Jr., of Augusta, Ga., won the handicap golf tournament.

Stop the Loom!

SILK AND RAYON CREPES REQUIRE ACCURATE BRAKE ADJUSTMENT

By H. E. Wenrich

◆ *Not so long ago a loom would run several picks after the shipper handle was shoved off. Today's demand, says Mr. Wenrich, is that the loom must stop instantly.*

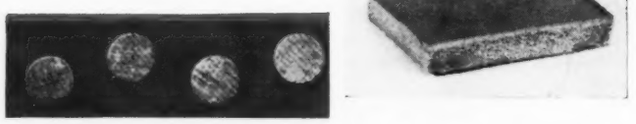


Fig. 1. Brake-lining materials—(1) Cork inserts. (2) Cork and leather. (3) Rubberized cotton fabric. (4) Leather

REGARDLESS of how good a weaver a fixer may have in his section and regardless of what type loom the mill may be equipped with, perfect merchandise cannot be turned out unless the brake mechanism is in perfect working order.

Our modern looms can be traced back to the time when crepes were just coming into demand. With the increasing interest in these weaves the consistent need was for better and better quality, and it eventually came about that the existing looms were not good enough to weave the perfect merchandise demanded. Recognizing this condition, the loom manufacturers began to improve their product.

Among the comparatively new features of modern looms is the brake mechanism. Many fixers can recall that a few years ago looms would continue to run a few picks after the handle was thrown off. Today's demand is that, when the brake handle is shoved off, the loom must stop instantly.

To secure the best results when fixing the adjustments on the brake mechanism, the fixer should make a study of the various leverage actions. During spare time he can advance his knowledge by drawing the mechanism on a piece of paper and, carefully going over the action of each part, studying the effect of the different adjustments. He will find that the knowledge so gained will greatly simplify his work. There are several types of brakes; but by studying the two types mentioned here and by following the suggestions just made, the fixer will accumulate a general knowledge which will be useful to him in adjusting most all the types of brakes with which looms are equipped at the present time.

In order to be effective, the brake must grip securely, preventing the loom from turning the instant the handle is thrown off. The wider the brake band, the more effective will be its action. The various widths usually run from 1 to 1½ in. The band must be lined with a material which will grip and at the same time retain its flexibility. It must also be able to stand up under the hard abuse it receives and wear for a long time. New materials are frequently placed upon the market for the purpose of relining the brake band, but the several materials mentioned here have had an opportunity to prove their worth.

Among the brake linings illustrated in Fig. 1 are leather, rubberized cotton fabric, leather with cork inserts, and leather and cork in combination. When leather brake lining becomes oily, it fails to hold, and the loom often turns over front center, leaving shires in the cloth. When the leather is defective, the band should be taken off and the leather washed with gasoline. After drying, the face of the leather should be scraped with a knife and rubbed with lime or French chalk to work all traces of grease and gasoline from the leather. After this treatment the brake band will be effective for a considerable period.

The leather with cork inserts is also a good lining and used exclusively in many mills. This lining will not be affected by oil to any appreciable extent; and when the corks are worn down, they can be replaced with other corks. The leather-and-cork combination is a leather strip with cork glued to it under heavy pressure. The leather is riveted against the brake band and the cork grips down on the brake-band wheel. This material gives long service.

Pigskin is a leather that is found admirable for fast-running looms. Its long life offsets the higher cost of its installation. Another suitable material is the rubberized cotton fabric, which has remarkably good gripping properties, but which is subject to wear if the bands are set improperly.

A fixer having difficulty with linings should try out different materials and choose that which is best suited to his looms.

Careful attention must be given to riveting the lining on the brake band properly. Fig. 2 shows the correct and the wrong methods. The correctly applied lining at *A* follows the curvature of the brake-band wheel and will wear longer, giving the fixer less trouble in repairs. To secure this curvature the diameter of the brake-band wheel must be measured. After riveting the lining at point *A1*, the fixer should bend the brake band so the distance in a straight line between points *A1* and *A2* will equal the diameter. While holding the band in this position he should mark the next hole for the lining at the rivet next to *A1* and follow this procedure around the band to the last rivet hole at *A2*. After he has so marked the lining, he should punch all the holes and proceed to rivet the lining to the brake band, finishing with the last rivet at *A2*. Then he should trim the lining off about ½ in. from the first and last rivet, as shown.

The wrong method of riveting the lining on the brake band is illustrated at *B*. Note that the lining is applied in a haphazard, hit-or-miss fashion, leaving pockets between the lining and the brake band. These pockets cause the lining to press down on the brake-band wheel while the loom is in motion, tending to retard the free motion of the loom and often overheating the motor and burning out the bearings. The lining surface also becomes overheated and wears out quickly, and the loom does not stop as it should.

Sometimes results can be improved by placing an additional rivet between each rivet already in the brake band. This is shown at *C*. The grip of the original rivets at *D1* and *D3* is here augmented by the rivet *D2*. This procedure can be followed completely around the band.

When a poor brake lining is discerned, it should be removed and replaced with a new lining immediately. The loom will then stop instantly and prevent many seconds due to shiry cloth. Some fixers make temporary repairs by floating lime under the band or holding wax against the brake-band wheel. These methods are more of a hindrance than a help and should be discontinued.

A poorly adjusted brake band can be noticed readily. The loom either doesn't stop or it runs slow. When the brake band or the brake-band wheel is hot, the brake is too tight or is otherwise improperly adjusted. If, after the band is loosened, the loom turns over on the pick, the adjustment is still not correct. The bolt on the brake band is by no means the only adjustment with which the fixer must concern himself, as will be evident from the following.

In Fig. 3 is shown the skeleton outline of the brake mechanism with which one of the more modern looms is equipped. A careful study of this diagram will show the different adjustments which are possible. When a fixer replaces the brake band on a loom after relining, the lower part of the band should be placed in position first. This is the end with the brake-band adjustment bolt *E*. After the bolt is slipped into the casting, the upper part of the band is slipped onto the stud at *F*, which is secured to the loom side. The nuts are then tightened or loosened at *E* to make the adjustment. Should the tightness of the band be still unsatisfactory, a further adjustment is made at other points.

The loom must stop before the lay is within at least ½ in. of front center. In order to determine whether the loom stops properly, the filling should be cut at the edge while the loom is in motion so that the machine will automatically knock off. If the loom turns over front center the band is too loose.

If the band is loose and the nuts at *E* cannot be further tightened without causing the loom to run hard, the spring-adjusting bolt *K* can be tightened at *G*, drawing the spring *L* tighter to give a quick snap to the brake band. If, however, a better leverage and more freedom on the brake band are needed, the rod *H* can be unfastened at *M* and made longer by being screwed out at this end. The opposite end at *I* is sometimes too short and should be lengthened by welding (new threads being cut) so that at least a 2-in. end will be secured for further adjustment.

In some cases the spring *L* becomes weak and should be replaced with a new one. Also the bottom casting at *J* becomes loose and needs to be tightened up. This latter place is often overlooked when a fixer is called for a defective brake. This lever *O* has a small roller at the top, *N*, which wears down and needs replacement. This roller fits into the lower part of the brake handle. The casting, as well as the brake handle, is adjusted up or down. The half moon *P* is the means of the brake handle being knocked off when the loom bangs off. The knock-off casting *Q* is the means of knocking off the shipper handle when the brake handle is knocked off.

In Fig. 4 is a different brake, although it resembles the one in Fig. 3 to a certain extent. It is designed for a loom of opposite hand. The bottom of the band is secured to the lever at *S* by means of a stud. The top of the brake band is secured to the loom side with the stud at *R*. The lever *T* is the means through which the brake band receives its leverage and is actuated by the rod *U*, from the brake handle *W*. An adjusting slot is provided at *V*. The brake handle is kicked off at *X*, and the spring extending from point *Y* to *Z* gives the necessary snap.

The brake band is adjusted mainly by removing the bolt from stud *V* and screwing it in or out at *U*. Raising or lowering the stud *V* in its slot provides a finer adjustment. The spring at *Y* is made stronger by tightening the eye bolt, which is secured by a casting bolted to the loom side.

On some looms there are also adjustments at the upper end of the brake band. The stud can be raised or lowered at this point. When the stud is lowered, the lining covers more surface on the brake-band wheel. The lower position is preferable.

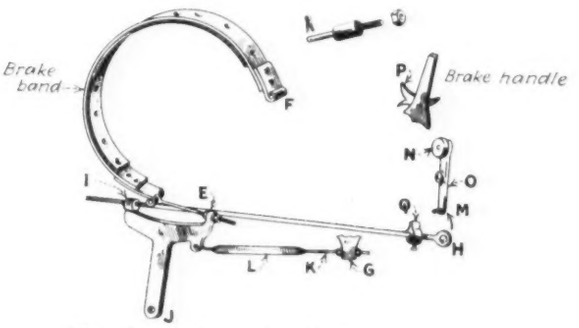


Fig. 3. Points of adjustment in brake mechanism

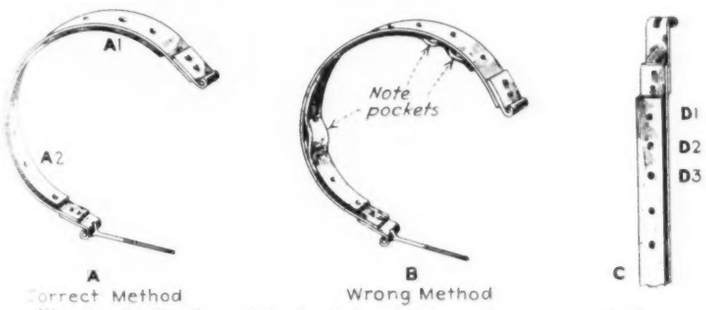


Fig. 2. Application of brake lining; right and wrong methods

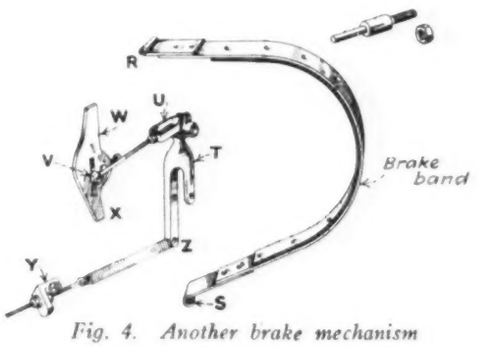


Fig. 4. Another brake mechanism

Knitting Cellophane

PRODUCING IMITATION-STRAW FABRICS ON CIRCULAR LATCH-NEEDLE MACHINES

By John H. Lepperhoff

Fig. 1 shows how Cellophane becomes twisted when unwound. Note difference in direction of twist between A and B.

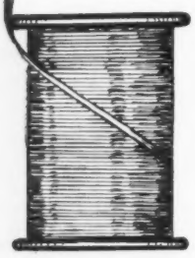


Fig. 1, A

SINCE yarns are more or less round in cross-section, a few turns or twists as they are fed to the knitting machine cause no harm. Cellophane, in the form in which it is being knitted for the millinery trade, is a flat ribbon; and its tendency to twist as it is fed to the machine presents a problem. How this difficulty may be overcome is explained in the accompanying article.

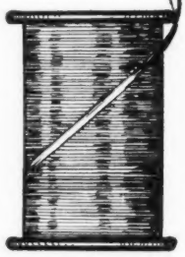


Fig. 1, B

ALTHOUGH Cellophane is a near relative of rayon, it was never intended at the time of its inception to be a raw material for the textile industry; but so it has become. In its chemical composition Cellophane is the same as the rayon produced by the viscose process, the only difference being that the viscose solution, instead of being spun into fine rayon fibers, is cast in sheets.

Sheets of Cellophane are so produced in any desired widths up to 40 in., which are then cut up in smaller widths as fine as $\frac{1}{64}$ in. The smaller sizes generally used in the knitting industries are $\frac{1}{64}$, $\frac{1}{32}$ and $\frac{3}{64}$ in. and are called "Cellophane web" or "Cellophane thread." Wound on spools, the web or thread finds its way into the braiding and knitting industries, which manufacture it into millinery materials, as it makes a very good imitation of straw.

Twisting Gives Trouble

Millinery cloth made of Cellophane web has been manufactured more or less successfully by several manufacturers operating circular latch-needle knitting machines. These manufacturers have found a problem presented by the twist or kink in the fine Cellophane web which develops when the spools or bottle bobbins are put on the knitting machine in the manner usual for yarn and the thread is taken off over-end. The twists or kinks interfere with the smooth and economical operation of the circular knitting machine, with the result that it sometimes becomes impossible to produce a saleable piece of goods.

A twist always occurs when the spool or bottle bobbin containing the Cellophane web is stationary and the web is taken off from the top, as shown in Fig. 1. It will be noticed that when the web turns in the direction indicated at *A* in Fig. 1 the resulting twist is in an opposite direction to that produced when the web unwinds as at *B*. These twists will accumulate at the first guide or porcelain eye the web runs through until so many twists have piled up that the web will kink and make a loop or will get tangled. The result usually is that the web breaks or a spotty fabric is produced. To overcome these troubles, use must be made of heat and moisture and a different method of preparation.

The first step is to eliminate the undesirable twisting and kinking as much as possible. As will be noted from a study of Fig. 1, a turn of twist is inserted each time the web goes around the circumference of the layers of the web on the spool. In other words, if the circumference of the winding or layer of the web on the full spool is 9 in., there will be one twist for each 9 in. of web taken off. On an almost empty spool where the circumference is approximately $3\frac{3}{4}$ in., one twist will be produced for each $3\frac{3}{4}$ in. Hence, the near empty the spool becomes, the more twists per inch will be found in the Cellophane web.

This twisting can be sufficiently eliminated by treating the Cellophane web before putting it on the spools or bottle bobbins in a manner which will give it a twist the equivalent of that which is inserted during unwinding, but in the opposite direction. For instance, if a right twist is made by the unwinding, a left twist must be inserted earlier. The problem is not simple, however; because, due to the varying circumference of the spool as it unwinds, the number of twists per inch also varies. Therefore it would be desirable, if it were conveniently possible, to put in originally a varying number of twists per inch which would conform to the variations which occur in unwinding. The nearest we can conveniently come to this ideal, however, is to insert originally a number of twists which is the average of those to be counteracted. The few remaining unbalanced twists have no harmful effect on the manufacturing process and the cloth, except in the case of plain jersey.

For Plain Jersey Work

In the manufacturing of plain jersey, it is necessary to have the web run into the carrier with absolutely no twist at all. Even when Cellophane web is prepared on

a twister, pronounced spots will be caused in this material by the few twists which still slip in with the web. Only a special device, such as that shown in Fig. 2, can overcome this difficulty. In the arrangement illustrated a spool of unprepared Cellophane web revolves freely on a little thrust bearing around a shaft fixed to a holder made of a piece of flat steel. The device is attached to the revolving part of the circular knitting machine which also holds the carrier, and is located as close as possible to the carrier. The rod actuating the stop motion has to be removed, and care has to be exercised to see that the holder with the spool does not interfere with the handwheel when in motion. The Cellophane web in this arrangement runs into the carrier the shortest and easiest way possible, and the twisting is eliminated entirely.

For other cloth constructions the Cellophane has to be prepared either on a twister or on a winder equipped as illustrated in Fig. 3. This illustration shows the fundamental construction and is largely self-explanatory. A spool *A*, with Cellophane web, is fastened on the floor in front of a bottle-bobbin or plain-spool winding machine. On top of this spool a flyer *B*, made of steel wire, is fastened on a piece of tubing *C*, which revolves around a wood screw *D*, fastened to a tapered wood piece *E*, inserted in the spool hole *F*. Between the head of the wood screw *D* and the tubing *C* holding the flyer *B*, a U-shaped flat piece of steel *G*, having holes on each end, is held in place by the screw. Tightening the screw influences the free movement of the flyer and with it the tension on the Cellophane web being wound. This in turn influences the tightness of the winding. All guides and porcelain eyes should be eliminated as much as possible or replaced by free-running V-shaped guide wheels, such as *H*. The guide wheels should be not less than 1 in. in diameter so that the twist now produced in the web can be wound without any accumulation in certain places on the spools or bobbins. In order that an average number of twists per inch may be maintained in the Cellophane, it should be carefully noticed that the average circumference of the full and empty spool *A* containing the unwound web corresponds to that of the spool or bobbin *I* which receives the web.

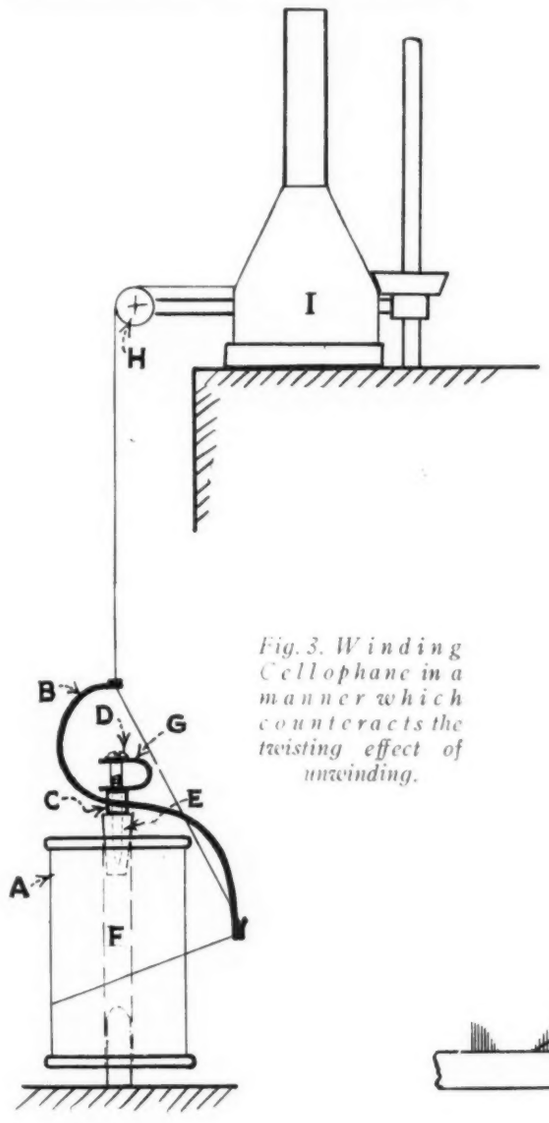


Fig. 3. Winding Cellophane in a manner which counteracts the twisting effect of unwinding.

Humidity and Heat

To operate the winding as well as the knitting process successfully, humidity and heat are very essential. A relative humidity of at least 70% and a good summer heat of about 80° should be maintained at all times in the winding and knitting rooms. Warm air loaded with humidity takes the springiness out of the Cellophane and makes the material soft and pliable. This condition is partcularly important for the winding, as it is essential that the wound web be placed on the spools or bobbins in such a manner that its layers are flat and contain no outstanding twists which might prevent other layers of winding from coming off freely. Furthermore, the humidity makes the Cellophane web elastic, which is an important factor in the knitting process when the web runs from the carrier into the latch needles, as the action of each needle, as well as the starting of the machine, causes sudden strains on the web. A cold, dry Cellophane web will snap off just like a fine steel wire, especially when the machines are subject to a cold draft. Special attention should be given to locating the machines where they are protected against drafts from elevators, doors, and windows. All unnecessary action of the sinkers should be eliminated by replacing those cams which take no part in the knitting process with straight cams in order to prevent the rubbing through of the loop on the needles and causing a defect in the cloth. The tension on the take-off should be just light enough to produce a clear cloth.

Should a lubrication of the web be desired, glycerin will be found satisfactory, as it does not interfere with the beneficial effects of heat and humidity on the Cellophane.

After the cloth is taken from the circular knitting machine, it is inspected and dyed in any desired color. Often it is also steamed and stretched in a manner which affects to a certain extent the calculation of its price.

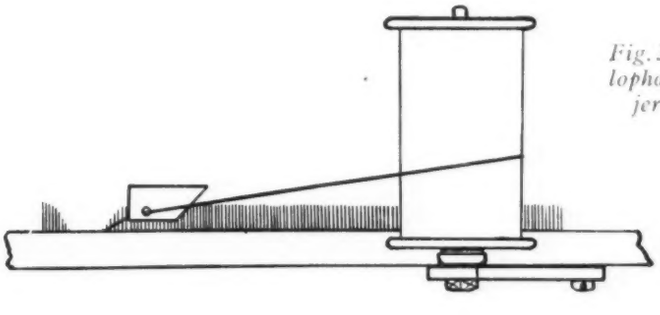


Fig. 2. Feeding Cellophane to plain jersey machine.

Tape Condensers

HOW MANY APRONS AND ENDS, AND WHAT PRODUCTION?

By Harold T. Godfrey
Davis & Furber Machine Co., North Andover, Mass.

Formerly the production of a woolen card was limited by the capacity of the ring doffers and condensing equipment. With tape condensers the limiting factor is the card itself. Admitting that production is a dangerous topic to discuss because of the many factors which govern it, Mr. Godfrey specifies the carding output being attained by several mills. This is an abstract of a paper on modern carding read at Lowell Textile Institute Alumni Day, May 20.

A GREAT deal need not be said concerning the advantages of tape condensers over the ring-doffer system. Briefly these are increased production; a more even, uniform roping; and the elimination of tops and bottoms.

A tape condenser of the proper type will condense all the wool presented to it by the finisher doffer. Formerly the production of a card was limited by the ability of the ring doffers and rub to handle and condense the stock properly. Today with a tape condenser the production is limited by the amount of stock the card can card out properly. This means that, in order to get the maximum of efficiency and production from a card equipped with a tape condenser, the card itself must be of a size and type to card out the stock thoroughly. In replacing ring doffers with tape condensers, the increase in production generally will range from 25 to 50%, and I have seen several cases where this increase has run as high as 75 or 80%.

While increased production is often the prime factor that induces the change from ring doffers to tape condensers, the improvement in the quality of the yarn is perhaps the more important advantage. This uniformity is due to the principles of the tape condenser itself—the taking off of the web by one large single doffer, the method of dividing the web into individual strands, and the fact that a tape condenser has approximately twice the condensing or rubbing surface of a double-apron rub.

Today tape condensers are running on all kinds of stocks, from the lowest grades of asbestos up to the longest of carpet wools. They are of three types: (1) the two-bank condenser taking off two spools and used mainly on flat-top cotton cards and asbestos cards, (2) the four-bank single-apron condenser having four pairs of 12-in. aprons and taking off four spools, and (3) the four-bank double-apron condenser having eight pairs of 8- or 12-in. aprons.

In choosing the type of condenser best suited to the conditions of the individual mill, many things have to be taken into consideration: the kind of stock used, the average size of yarn made, the length of spool, and the number of ends now used on the mules. The four-bank single-apron machine is the type used today by most mills making women's wear, men's wear, and cloakings.

The four-bank double-apron machine is found much more satisfactory for mills making heavy yarns, due to its greater condensing capacity. It is also well suited for mills using wools that need much rubbing, such as are used in papermakers' felts and carpets. Conversely there is an increasing demand from mills making high-grade light-weight yarns for the double-apron condensers. On a single-apron machine all imperfections in apron, etc., may cause marks in the roping. On the double machine as used for fine yarns, the back set of aprons next to the tapes is used for the heavy rubbing and the front pair of aprons is set light to rub out imperfections and give a smoother, more even roping.

The number of ends taken off on a tape condenser depends on the size of the card and the average size of the yarn made. It is hard to give a definite rule for the number of ends, so I am going to give a few examples found to be satisfactory. On a 60-in. wide card, 96 ends are used where the average size of roping made ranges from $\frac{5}{8}$ run up to $2\frac{1}{2}$ or 3 run. On a 60-in. wide card for roping between $2\frac{1}{2}$ and 6 run, 120 ends are used. On a 48-in. wide card 80 ends are employed for heavy work and 96 ends for the fine yarns. Several mills use 120 ends on 48-in. wide cards on fine yarns.

The number of ends used can be suited to the individual needs of the mill, and we have made condensers for 60-in. cards from 60 ends up to 140 ends and on 48-in. wide cards from 80 ends to 120 ends. In order to meet varying conditions, we have made condensers taking off two, three, four, six and eight spools.

The following examples are representative of the production that a modern set of cards equipped with a tape condenser will give today:

A satinet mill is making from $\frac{3}{4}$ to 2 run, all picked stock. The cards are four-cylinder, 60x60-in. with double-apron tape condensers taking off 96 ends. The production per card on $\frac{7}{8}$ run is 115 lb. per hour.

A women's-wear mill is using short wools, noils, etc. The cards are three-cylinder sets, 60x60-in. equipped with single-apron tape condensers, 96 ends. A 2000-lb. lot of 1-run is produced in 18 hours, 111 lb. per hour.

A men's-wear mill has three-cylinder sets, 60 in. in diameter and 48 in. wide with single-apron tape condensers taking off 96 ends. Production on $2\frac{1}{2}$ run is 56 lb. per hour; and on $3\frac{1}{4}$ run, 38 lb. per hour.

A carpet mill running 60x60-in. cards with double-apron tape condensers is taking off 80 ends of $1\frac{1}{8}$ run, attaining 83 lb. per hour. A similar card with ring doffers is giving 58 lb. per hour on $1\frac{1}{8}$ run.

A cotton-waste plant in Georgia has four sets of 60x60-in. three-cylinder cards equipped with double-apron tape condensers taking off 96 ends. It has six D.&F. spinning frames. The stock used is very low-grade cotton sweepings and flyings. The production of the plant in 116 hours per week is 30,000 lb. of yarn.

Here is an example of production and cost in a mill having an old card room and a new card room. The old card room has twelve sets of 40-in. cards with ring doffers. The production of the twelve sets for a 48-hour week on $3\frac{1}{2}$ run is 14,750 lb. The cost of labor per 100 lb. is $1.96. The new card room has six sets of 60x60-in. cards with single-apron tape condensers, taking off 96 ends. The production on the six sets for a 48-hour week on $3\frac{1}{4}$ run is 15,000 lb. The cost of labor per 100 lb. is $1.34.

SKILLFUL MANIPULATION ESSENTIAL IN

Backwashing Crossbreds

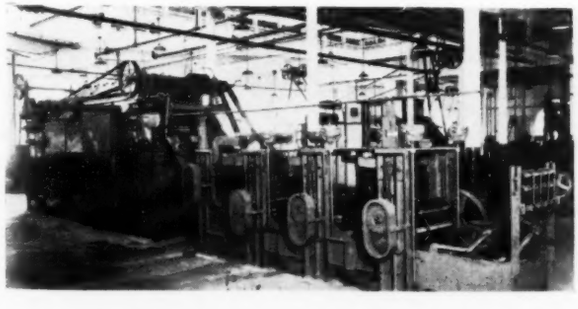
By Frederick B. Hudson

DINGY and dark-colored crossbred wools are given a much brighter appearance by suitable backwashing. In addition they comb better, and the tops and noils command a higher price on account of their improved color. Due to the fact that the fibers tend to "spread" in washing and to blow about wildly in the drying chamber, skillful manipulation is necessary, however, in the backwashing of crossbreds.

Since the raw wool is in a matted condition, all of the impurities are not removed during the initial scouring operation; therefore, when the stock is opened in carding or preparing, the concealed dirt spreads out and coats the fibers with dust. These dirty slivers can be cleaned and the color improved by a treatment with a 1% soap solution in the first bowl of the backwasher. If, through improper scouring, these wools have been allowed to retain an undue amount of grease, this should be removed during the backwashing operation by the use in the first bowl of about 5% of alkali in addition to the soap. It has been found that ammonium carbonate is a satisfactory alkali for recleaning crossbred wools, as it cuts the grease and leaves the fibers bright and lofty.

Discolored and urine-stained crossbred wools cannot be sorted in the greasy state; and for this reason should be classified prior to carding. Wools which are white and bright are made into "straight" or "clear" lots, while stained and discolored wools are grouped as "stained" or "dingy." Slivers from the "stained" lots have a dirty, yellow cast, which in the majority of cases can be improved by the use of a small amount of blue dyestuff in the soap tank of the backwasher. Very dingy and dark-colored wools do not respond to the bluing treatment and have to be bleached with hydrogen.

If crossbred wools are to be blued in the backwasher, tests should be made with samples of the dingy sliver to find the dyestuff which will give the best white. In many plants the bluing is applied in the rinsing bowl when dealing with fine merino wools. On the other hand, when dirty crossbreds are being treated, it usually is advisable to apply the dyestuff in the first bowl, since the soap assists in the wetting out of the wool and enables a better absorption of the dye. A constant delivery of the dyestuff by means of an automatic feeding device insures a uniform bluing liquor, which in turn, gives a level shade on the sliver.



Fiber shrinkage in backwashing necessitates adjustments of roller speeds to prevent the slivers from being severed and broken in washing and drying. Fine wools tend to shrink more than crossbreds and long wools, but do not cause as much trouble with roller laps and broken slivers. Accurate speeding of the squeeze rollers in their relation to the delivery rollers is essential, as squeeze rollers which run too fast sever the slivers as they rise from the liquor, while squeeze rollers which run too slowly allow the slivers to sag at this point and wrap round the immersion rollers.

The squeeze rollers and the drying chamber should also be set in an exact relationship, because the open nature of a crossbred sliver does not allow any tension to be placed on it, and the sliver will sever if the pull of the drying cylinders is in excess of the squeeze-roller delivery.

To insure the successful manipulation of crossbred wools on the backwasher, a compact sliver is essential. This is obtained by placing the sliver guides close together, and crowding the slivers delivered into the center of the wash bowl. At the squeeze rollers, a 6-in. margin at each end of the roller is essential, which causes the wrapping to be worn at the center of the top roller.

Well-covered top rollers are vital to the proper treatment of these wools in the backwasher. Since crossbreds are harder than the finer wools, they wear the roller wrapping more quickly; and owing to their need for compactness, the wearing is confined to the center of the roller. As soon as the nip of the squeeze rollers becomes less effective, the entire wrapping should be removed and a new covering put on the roller from end to end. Patching of the worn-down wrapping at the middle of the top squeeze rollers is a practice not to be commended, because the clothing tends to creep and make the roller surface lumpy, which gives irregular drying.

Crossbred wools tend to leave the drying chamber in a wild, open state; and in many cases it may be necessary to regulate the air draught around the last two cylinders to prevent the slivers from being badly blown and disarranged. Owing to the open nature of these wools, which are difficult to unwind from a ball after the backwashing operation, it is preferable to employ can gill boxes.

Great care should be taken to prevent the wools from becoming too dry, about 25 to 30% of moisture being essential to satisfactory combing. Excessive blowing of slivers on the last cylinders indicates excessive dryness, and should be prevented either by removing some of the weights from the squeeze rollers, or by reducing the velocity or the temperature of the air current.

Novelty-Yarn Fabrics

WOOLENS AND WORSTEDS EMPLOYING RATINÉ, NUB, AND FLAKE

By Ralph Downs

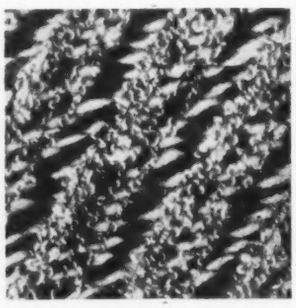


Fig. 1

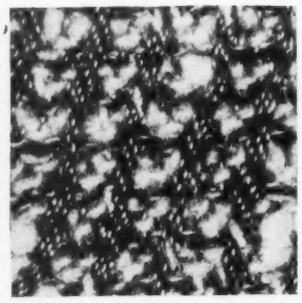


Fig. 3

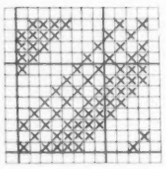


Fig. 2

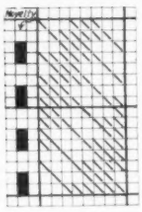


Fig. 4

◆ *In this country and abroad many beautiful fabrics have lately been developed from novelty yarns by the woolen and worsted mills, particularly the former. In this article a designer writing from England describes and analyzes four interesting fabrics produced to illustrate certain possibilities in the construction of novelty cloths.*

FABRICS made from novelty yarns with both simple and complex weaves have lately enjoyed popularity, and the continued interest displayed by manufacturers in a number of the different types of novelty yarns is a clear indication that some of the patterns being made for next winter will contain a good percentage of such yarns. Much has been written on the construction of novelty yarns; but few of the writers have ventured to discuss the subject from a style and cloth-construction standpoint, and it is hoped the following remarks will help a little in this direction.

To use novelty yarn successfully requires a certain amount of ingenuity and imagination, because in many instances it involves visualizing correctly the finished effect prior to the material being dyed. Again, when making dress goods and coatings, the traditional methods of finding the most suitable number of ends and picks cannot be utilized because of the uneven diameter in some cases and in others the combination of widely different counts of yarn. Further, the type of finish is very important, because a number of instances could be cited where the effort and skill of a designer have been ruined by faulty processing in the finishing.

To illustrate more clearly the points mentioned, a few patterns have been made, and the chief features in each will be discussed in detail. No detailed reference will be made, however, to the construction of the various novelty yarns, as this work has been covered recently (TEXTILE WORLD, August, 1932, page 89), but the resultant counts will be supplied.

Effective Use of Yarns

Fig. 1 illustrates a cloth that can be made quite successfully by most manufacturers possessing dobby looms with a sixteen-shaft capacity. Many modifications can be easily obtained by drafting and pegging. It is highly suitable for a women's coating, being bulky but comparatively light in weight. The warp yarn is known as a fine knop curl (or nub ratiné) and is composed of a two-ply worsted base thread around which is twisted a medium-count singles cotton thread with an excess delivery to form the knop (nub) and curl. These two threads are finally bound with another fine two-ply botany worsted thread. The filling is very thick in count and is composed of a woolen thread (44s quality) twisted with a condenser cotton thread with six turns per inch. The filling yarn is exceptionally cheap, and its thickness imparts bulk to the fabric.

Since both warp and filling contain wool and cotton threads, cross-dyeing in the piece is recommended, because it is economical and obviates the stocking of different colors. To get the best effects the wool or cotton (as is desired) should be dyed a color strongly contrasting with the white of the other material, such as black, brown, or blue. With such a combination of materials it is easily possible to obtain two-color effects.

The design is shown at Fig. 2 and is known as a twelve-harness diagonal. Such designs are easy to make and admirably reveal to the maximum the characteristics of a novelty yarn; hence their popularity for this purpose. During finishing, great care should be taken to prevent undue shrinkage filling way, or the fabric will handle thick and boardy, thereby becoming unsuited to the purpose for which it was designed. Further particulars used in manufacture were as follows:

Warp	Filling
11s worsted R. C.*	1 run R. C.
22 ends per inch	11 picks per inch
59½ in. in the reed	Finished width, 54 in.
*R. C. = resultant count	11/12 oz. (54x36).

Fig. 3 is another good illustration of how novelty yarns may be used effectively. In this case all the warp threads are made by using a fine black cotton for a base yarn and excessing a fine two-ply white botany to form small knops (nubs) every 3 in. The yarn in this form is very smart but too strong in color and not sufficiently bulky for a coating and both these deficiencies are overcome by binding with a two-ply worsted yarn. The number of turns inserted is just sufficient to permit the twist effect showing in the cloth, while the knops help in adding character.

The filling yarn is composed of two novelty threads

which differ widely in character. One is constructed exactly the same as the warp but with different colors for base and knopping threads. The other filling yarn is a two-ply woolen, one thread being a slub or flake yarn, around which is twisted a fine single woolen. The direction and the amount of twist are such that an imitation "ondé" effect is imparted, causing the slubs to be fairly prominent. The latter yarn is made in all white and, when used in two-and-two order, provides a pleasing color contrast to the other yarns employed. Further, it imparts a bulky handle without weight to the cloth, which would be otherwise lean.

The design employed, Fig. 4, is another example of a diagonal, but this time the angle of the twill is much higher, because a move of two is employed in its construction. Only eight harnesses, straight draft, are necessary to make the cloth; and since the set is fairly open, practically no difficulty is experienced in weaving. In making this example, the full particulars were as follows:

Warp	Filling
10s wstd. knop, brown & white	.8-run slub yarn, 2 picks
22 ends per inch	10s wstd. knop, orange and white, 2 picks
65 in. in reed	Weight, 14/15 oz. (54x36).
	16 picks per inch.

Less-Expensive Fabrics

The two examples discussed have been made from yarns all of which possess some special feature; and, although they are effective, some of them are expensive, chiefly because of the time involved in production. In trying to do business in markets where something new is necessary, but where price is of vital importance, various methods of substitution have to be employed. This often presents difficulties, and an example of how to overcome them is shown in Fig. 5.

The warping scheme is a modification of one ground, one novelty, a contrasting ground color being introduced intermittently and arranged to appear on the surface in twill order. The ground yarn has a feature not present in the average plied woolen yarn; i.e., it is a "cable twist." The novelty yarn in both warp and filling is of the curl type, in which the curling thread is a bright-colored woolen excessed over a dark-brown worsted base thread. A dark worsted binder is used to hold the curl securely in position.

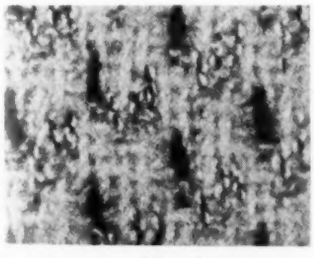


Fig. 5

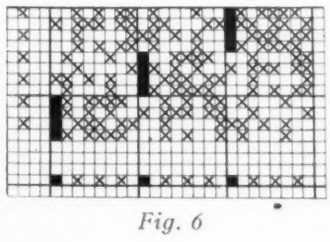


Fig. 6

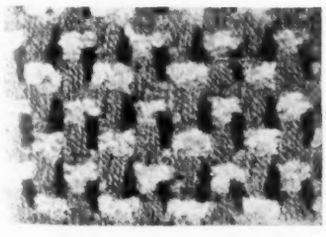


Fig. 7

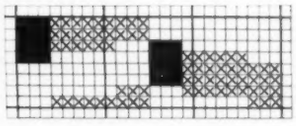


Fig. 8

The design, Fig. 6, is complete on 24 ends and 12 picks; and in its construction the novelty warp threads are arranged to spot on the face of the cloth. The novelty filling yarn does not show prominently on the face; but, by contrasting in color to that used in the warp, it adds richness and bloom to the appearance of the cloth. Full particulars for making this example are as follows:

Warp		Filling	
2/3.2-run blk. cheviot	1	2/3.2-run beige	1
2/3.2-run beige	1 1 1 1	1.3-run R. C. novelty	1
1.3-run R. C. novelty	1 1 1	18 picks per inch	
20 ends per inch			
61 in. in reed, to finish 54 in.			

Worsted weaving yarns are not used so extensively as woolen yarns where fullness of handle is required; but occasionally they are employed when it is necessary to have a smart, clear finish and a fine face appearance. To obtain the weight and fullness, different methods are adopted. One which is being exploited by some designers is to have a number of ends or picks, or both, interlacing exactly alike. This departure from traditional ways adds stability to what would be a very loose texture and, further, is an ideal way of securing novel effects. The number of threads in a group which work alike can be the same throughout the warp, or the size of the groups can be varied according to discretion. By working along these lines with light warp and dark filling, many attractive cloths can be obtained. Color can be introduced very effectively with such designs, and the use of contrasting colors is permissible; but the cloths which are most successful are tone-and-tone effects.

An alternative to working the threads in groups, especially in the filling, is to twist a number of threads together softly (say two or three) and insert as a single pick. This helps to make the cloth firmer and bulkier than if each were inserted singly; and, further, it reduces the number of picks per inch at the loom. Another feature about this type of fabric construction which is worthy of mention is the small number of harnesses required in weaving, as the draft is invariably in sections. Variation can also be made by using point draft and extending the pegging plan. For decorative purposes, novelty yarns can be used, but not on a lavish scale, or the effect formed by the ordinary yarns has a tendency to be buried.

A cloth illustrating the above features is shown at Fig. 7, the warp being a fine-quality worsted and the threads being grouped in threes and sixes (see design at Fig. 8). The order of color is simple in both warp and filling, but by arranging the design so that the medium tones are used for ground and the dark warp threads and novelty filling yarn float prominently on the surface, a very smart-looking cloth is made. The type of novelty used in this example is an all-worsted curl knop (ratiné nub), in which the base thread is two-ply orange, with the light gray knopping thread excessed around it and finally bound with a light brown thread. Other particulars used in manufacture were as follows:

Warp		Filling	
2/40 dk. brown	3	2/2/32 mid. brown	1
2/40 mid. brown	9	3/2/40 lt. brown	1
64 ends per inch		5s Worsted novelty R. C.	2
63½ in. in reed		22 picks per inch	
		Weight, 13/14 oz. (54x36).	

The cloth should be given a clear finish.

Loom Upkeep

REDUCED BY CORRECT SETTINGS

By Milton Meek

◆ *"Incorrect settings," declares the author of this article, "are responsible for more than 50% of excessive weave-room maintenance charges." He recommends certain fixes which reduce maintenance, increase efficiency, and improve quality. In an article on page 68 of our May issue, entitled "Advice to Weave Room," he discussed improperly sized warps, unsatisfactory drawing-in, and defective filling.*

IT FREQUENTLY happens that a fixer will give additional power to the pick to overcome other inaccuracies in the setting, such as the shuttle being too tight in the box or early or late setting of the harness or the picking motion. The picker stick should begin its forward sweep with the crank arm on top center. As the shuttle leaves the box, the shed should be open sufficiently to allow it to enter without unduly retarding its movement. To insure a correct setting of the harnesses, it should be observed that those which are changing have reached a level position when the reed in its forward movement is approximately 2½ in. from the fell of the cloth. It should be mentioned that, when cloths of very heavy construction are being woven, the above standard settings are often slightly modified. A weak pick may be caused by a defective lug strap, a worn pick point or pick-ball shaft, insufficient sweep of the picker stick, nuts worked loose by vibration of the loom, etc.; and these defects should be looked for before the power is increased. Regulating the power of the pick will do much to insure smooth running consistent with the minimum strain on the parts of the mechanism involved.

Excessive wear of the picker stick on plain single-shuttle looms is so seldom evident that we pass on to the more serious defects of its undue wear on drop-box looms. In the majority of cases this is due to a short sweep. The small surface subject to wear when the upper part of the stick comes in contact with the picker results in the formation of a deep shoulder, which often gives an erratic throw to the shuttle. Setting the sweep of the stick so that the wear will be distributed over a larger surface will prevent a deep shoulder being formed and prolong the life of both the stick and the rawhide picker. It is a good practice to instruct the weaver to lubricate regularly every morning the stick and picker, where they come in contact. Correct timing of the boxes and the eccentric motion is of course essential.

Filling breaks apart from such obvious defects as yarn sloughed off the bobbin and large slugs which choke the eye of the shuttle. The latter trouble is often difficult to detect. Constant filling breaks when a class of goods intricate in pattern is being woven make a great deal of additional work for the weaver when it is necessary to find the pick. They also seriously increase the tendency to make thick and thin places in the cloth. The shuttle eye should be carefully examined to make sure there are no sharp edges and also that the filling is threading correctly. The groove which prevents too much strain being put on the filling when the shuttle enters the box should be of a sufficient depth to fulfill the purpose for which it is intended. A matter which is sometimes overlooked is the possibility of the filling being cut between the fork and the grate. A sharp edge on either will act like a knife on the filling.

It is often evident that a shuttle shows signs of undue wear, owing to the fact that it is going high in the box and coming in contact with the iron above the binder. The shuttle becomes rough, and end breakages occur. Unless the causes for this are removed, it is no exaggeration to say that three to four shuttles will be worn out in the time of one. A picker which is set too low or a shed which is too high above the race plate will cause this defect. Damage to the reed will result from the retaining screw of the shuttle eye or spring protruding from the side of the shuttle after long use. The weaver should keep a careful watch for this.

The efficiency of loom operation may be greatly increased by the system being established whereby the fixer should overhaul each loom before starting a new warp. Certain readjustments and replacements found necessary can be more easily accomplished in this manner. More serious troubles can often be averted and cloth defects made fewer. The parts of the loom overhauled should include the following: camshaft and crankshaft boxes, crank arms, protection rod and supports, stop motions, picking motion, and all nuts, the latter to be tested for looseness.

An examination of the equipment before any warp is taken to the loom is advantageous. A broken collar or a loose pike may be found. The reed may be damaged, or the harness hooks may require attention. Once the warp is in the loom, these faults are much more difficult to remedy.

The prevention of end breakages is of particular importance in the case of intricate patterns; because, if excessive end breakages occur, the loom girl may be occupied for two hours in setting things right again.

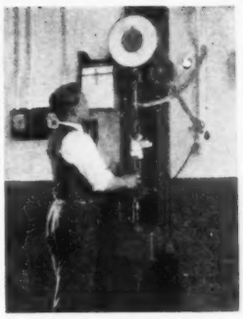
To determine that the construction and design are correct in every detail after a new warp is started up with either jacquard or dobby weaves, a sample of the cloth should be cut from the first yard woven on the loom and examined by the designer or overseer. It often happens that some of the pegs in the dobby chain are inserted wrongly or, with a new set of jacquard cards, that the holes may not be punched correctly.

An incorrect number of picks per inch is often caused by the take-up catch not being set correctly. With the crank arm on front center the catch should be set so as to clear the tooth in the ratchet by $\frac{1}{16}$ in. After starting the loom, the fixer should observe that on every pick, for at least the required number per inch, the catch falls into correct position.

Incorrect settings are responsible for more than 50% of excessive maintenance charges.

Spinning Instruments

OF SCIENTIFIC CHARACTER ENTER THE TEXTILE MILL



By Benjamin J. Zalkind
Saco-Lowell Shops, Boston, Mass.

◆ *The day of guessing in the manufacture of cotton yarns is passing. Some time ago the strength tester entered the mill and eventually won wide recognition. Now, rather suddenly, we have the roving tester, the sliver tester, and the roll-spacing determinator. The microscope is establishing its importance. This article is an abstract of a paper read on Lowell Textile Institute Alumni Day.*

IN THE textile industry, the development of methods for testing the products came subsequent to the actual development of the products and processes themselves. In modern practice, test methods are developed at the same time that the products themselves are created. Possibly because the latter is not true in our own industry is why practical experience and the standard rules and formulas based on it have persisted as the foundation of textile-manufacturing methods. Perhaps it accounts to some extent for the total lack of cooperation that there was within the industry until comparatively recent years. There were no common methods recognized by all, as contrasted with other industries where cooperation and mutual understanding form the keynotes of rapid progress. Something more tangible, more scientific than a person's own judgment and opinion is necessary.

Only a few months ago, a large Southern mill sent in to us several samples each of their card and drawing slivers, rovings, yarns, and raw cottons. They admitted that their roving was uneven and requested us to test this material and to advise what might be done.

A complete set of tests was performed. These involved the use of the Belger roving tester, the Saco-Lowell sliver tester, the Scott yarn-breaking machines, and other instruments. From the results obtained it was possible to advise the mill which of their operations were being performed efficiently, which of them had defects, and also (probably most important) the probable cause and the remedy for the defects.

The reply from the mill, after the report was submitted, was an expression of appreciation for performing the tests and a statement to the effect that the results and conclusions were of great value.

It was only by the use of these testing instruments, most of which were developed within the last few years, that it was possible to determine the trouble and its source, so that it could be rectified promptly and accurately.

The use of the Belger roving tester as a means toward improving the quality of roving may well be mentioned. It measures the uniformity of strength of roving. It shows whether the twist inserted is the proper amount for the size of roving and the staple. It is an indication of the efficiency of operation of the roving frames by showing whether or not the roving has been stretched by improper tension. Used in conjunction with the sliver tester, it shows exactly the efficiency of the roving process, both as to mechanical operation of the frame and as to the drafting action performed.

The actual development of long-draft-spinning equipment and its general adoption by the mills, I venture to say, would no doubt have been delayed perhaps several years if the necessary instruments had not been available. Without the accurate yarn-testing machines which are now available how would one know that the yarn spun was actually stronger?

Economies in production may be procured by increasing the rate of production of a machine; in other words, by increasing its speed. Thus, by simply raising the speed of a regular three-roll spinning frame—within practical limits, of course—the spinning cost may be decreased. However, instruments are necessary in order to know when the limit of speed has been reached, the point at which quality begins to be sacrificed.

Within the past year, we have introduced the controlled-draft drawing process. The development and perfection of this drawing frame was due, in a large part, to the assistance obtained from the use of the sliver tester, a precision instrument which measures the actual cross-sectional area occupied by the fibers in a sliver or in a slubber roving.

The first method of conducting these drawing-frame tests was to carry the sliver through to the yarn stage, and then to test the yarn in order to determine the resuls. Why? Because there was no satisfactory sliver tester and there were satisfactory yarn-testing machines. This was a slow, expensive, and not a really satisfactory procedure because of the possibilities for the introduction of other variables in the roving and spinning operations.

In searching for something more definite, investigation disclosed that E. D. Walen, class of 1914, had devised and patented an instrument for this very purpose. It was then still in its first stages of development. The patent rights were secured and the instrument perfected.

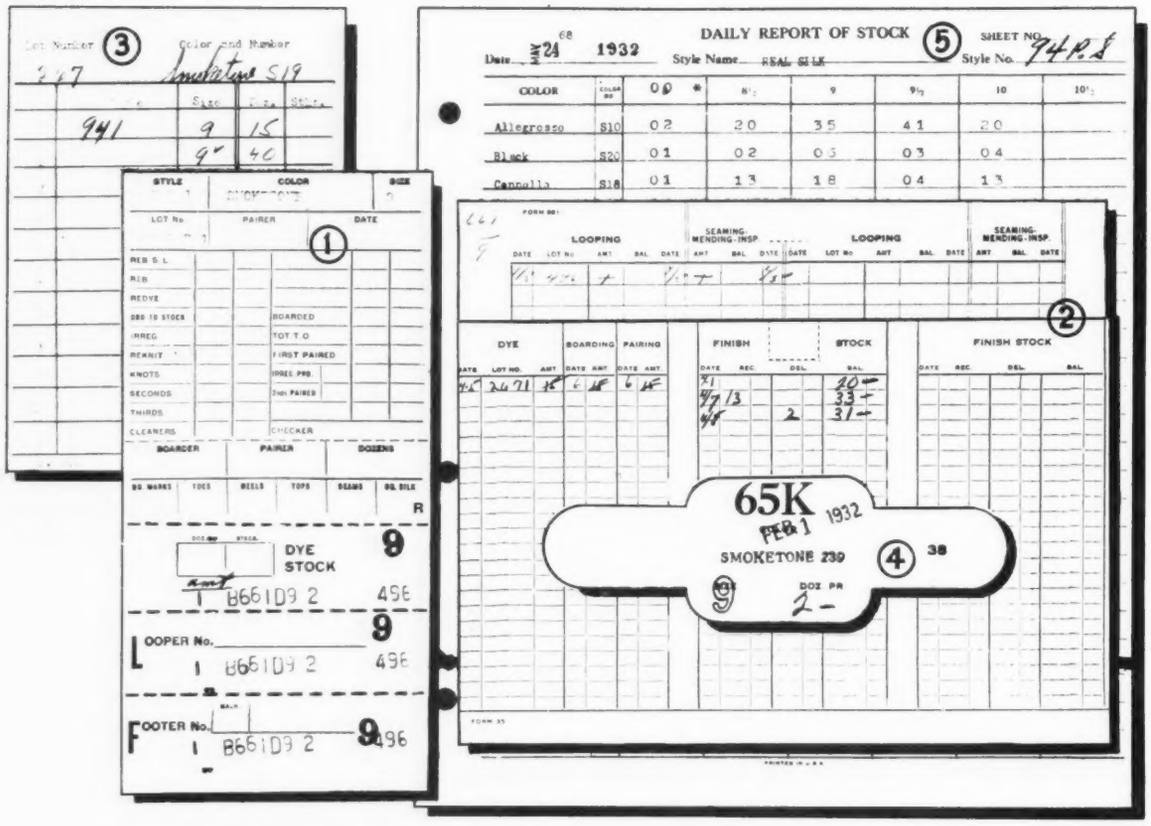
The product of the card and of the drawing frame is customarily checked in the mill by weighing 1-yd. lengths. The indefiniteness of this method in determining the true evenness of the work is readily apparent when one stops to consider that one yard of a 60-grain sliver ultimately produces over 200 yd. of 30s yarn. The actual evenness of every cross-section of sliver, every one of which is composed of thousands of fibers, is the only real indication of what the ultimate yarn might be—modified, of course, by the effect of the subsequent processes.

Another phase of textile testing might also be touched upon briefly—that of the use of the microscope. For the inspection of cloth finishes, constructions, etc., as well as for close examination of the product of every process in the mill, the microscope is invaluable.

REAL SILK HOSIERY MILLS HAS ACCURATE SYSTEM OF

Production Control

By F. Philip Delks



Collection of forms. (1) Work order. (2) Records for work-in-process and finished stock. (3) Process control card. (4) Finished stock ticket. (5) Daily stock sheet.

IN order to balance inventories of work-in-process and finished stock with actual sales demands, Real Silk Hosiery Mills, Inc., Indianapolis, Ind., has developed a unique system of production control which facilitates the scheduling and dispatching of work. This system is designed to give all necessary information with the greatest possible simplicity, accuracy, economy, and speed. The cancellation method of inventory control is followed, whereby each lot is debited and credited as it passes through the various departments of the mill. The inventory record serves as a check system for the payroll department, insuring against double payment for any operation.

For compiling the records, a Kardex visible process-inventory-control and finished-stock-record system is used in conjunction with perforated tickets (Fig. 1) for all work orders. As the work-in-process passes from one department to another, the stubs are removed from these tickets and are forwarded to the production-control department. From these stubs the necessary information is obtained for the process inventory.

The information contained on the stubs is tabulated on two visible records (Fig. 2). On one card are posted the data taken from stubs received from the footing, looping, seaming, mending, and inspecting departments; on the other, the data from stubs returned by the dyeing, boarding, pairing, and finished-stock departments.

Production and stock-control cards (Fig. 3), which indicate the material needed to fill the mill's immediate requirements, play an important part in the system. Each card carries the lot number, color, color number, style, sizes, and the number of dozens for each size. From this card, the file clerk obtains the date, lot number, and quantity to establish his Kardex records.

The production-control card is then turned over to a girl who types from it the finishing-department work orders, carrying the stubs which direct the movements of the material through the several departments. When any one order exceeds 15 doz. pair and/or calls for more than one size, this girl in making out the work orders breaks down the lot into subdivisions; thus if Lot 267 calls for 15 doz. of Size 9 hosiery and 40 doz. of Size 9½, the 15 doz. of Size 9 comprises one subdivision designated as Lot 2671; the 40 doz. of Size 9½ is broken down into three sub-divisions, Lots 2672A, 2672B, and 2672C, of 15, 15, and 10 oz. respectively.

Each stub carries the style, size, lot number, and quantity; also the operator's name and machine number for use in making up the payroll. The clerk segregates the stubs by department, style, and size. Then from the footer stub, he records the date, lot number, and amount on the Kardex card. When the stub from the looping department comes through, the first entry is cancelled by drawing a line through it, this cancellation indicating that the material has gone to the seaming, mending, and inspection departments. The date is recorded and the amount is posted in the column designated for that particular lot. The dye stock stub carries a space wherein an entry is made of the actual number of pairs of hosiery delivered to the dyehouse; and if any shortage shows up after inspection, the record is altered accordingly; otherwise, when the stub is received, the amount is cancelled and the date of delivery to the dye-stock department is recorded.

Upon receipt of the dye stub, the clerk cancels the dye-stock entry and posts to the boarding column; upon receipt of the boarding stub, he cancels the boarding entry and posts to the pairing column. Receipt of the pairing stub informs the clerk that the material is finished and has been delivered to stock; therefore he cancels his last entry, which completes the work-in-process inventory, and establishes his finished-stock record from this same stub, posting the date of delivery and amount and bringing his balance-on-hand up to date. After posting these entries, he turns over the pay stubs to the payroll department for use in compiling the payroll.

After it leaves the finishing department, the hosiery is put up in individual envelopes and is delivered to the finished-stock department in 2-doz. containers properly tagged (Fig. 5) as to style, color, size, and amount. When an order comes through for any item of hosiery, the finished-stock department fills the order by taking from stock one of these packages and removing the tag which is turned over to the stock-record clerk. This tag, as long as it remains with the stock, identifies the merchandise; but upon removal, it serves as a pre-written delivery ticket and is used as a material requisition.

Up to delivery to the dye-stock department, the hosiery is without color and is in small lots, no one lot exceeding more than 15 doz. pr. This particular set of records is in charge of one clerk. After the hosiery leaves the dyehouse, the work of posting increases, four clerks being required. Each clerk is in charge of a file containing about 18 styles, 14 colors to the style, and 6 sizes to each color. This means that there are on an average of 1,512 record cards to each file; and during the course of a day each clerk makes approximately 2,000 entries.

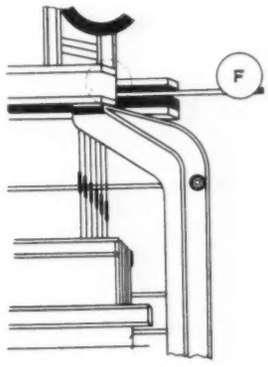
Every day, after all entries are made, a clerk goes through the files and lists the stock in the various departments, thus establishing an inventory of the work-in-process for that day. From the daily stock sheet (Fig. 6) which is compiled from these records, the stock on hand is determined and the production estimate for the following day is scheduled.

According to Paul M. Fifer, production manager of Real Silk Hosiery Mills, adoption of this system has made possible the elimination of awkward board-control systems and expensive machine bookkeeping, and has resulted in the desired increase in effectiveness at a tremendous saving in expense.

Filling, Please!

A SIMPLE SIGNAL BY WHICH WEAVER MAY NOTIFY QUILL BOY

By Otto W. Bitzenhofer



IN SOME mills it is the custom when the weaver runs out of filling for him to stop his looms, take his quill board to the filling-winding department, and obtain a new supply of full quills. In other mills a special supply boy is supposed to note the numbers of those looms on which the boards are nearly empty and to see that they are supplied. The latter method is the better, but it is not uncommon for the boy to overlook one or several looms; and in such cases the weaver is obliged to fetch the quills himself. Since the object in having a supply boy at all is to prevent the weavers' absence from their looms and so to keep the looms in operation, the gain is somewhat nullified by any frequent oversights on the boy's part. Some mills have little idea as to just how long their looms are shut down in a day. A recent investigation in a silk and rayon mill operating 62 looms disclosed that the daily stopped time averaged 6 hr.

The accompanying diagram shows how a simple signal can be devised to inform the filling-winding department that the supply of quills on a loom is about to be exhausted. A rod is slidably mounted on the frame of the loom. At the outer end is affixed a sign of sheet iron facing along the aisle toward the winding department. It is best to paint the metal sign white and to letter it with a red painted "F" or "Q", representing "filling" or "quills." Such a sign will stand out prominently even at a considerable distance.

When his filling supply is sufficient, the weaver will leave his sign pushed inward toward the center of the loom, as indicated by the dotted line; but when he has no more than some ten quills left, he will push the sign outward toward the aisle. The quill boy will look for these signals at regular intervals and act accordingly. A weaver operating more than one loom requires only one signal, pushing it out when any one of his boards is empty.

In this simple way the stoppage of looms caused by lack of filling can be completely prevented.

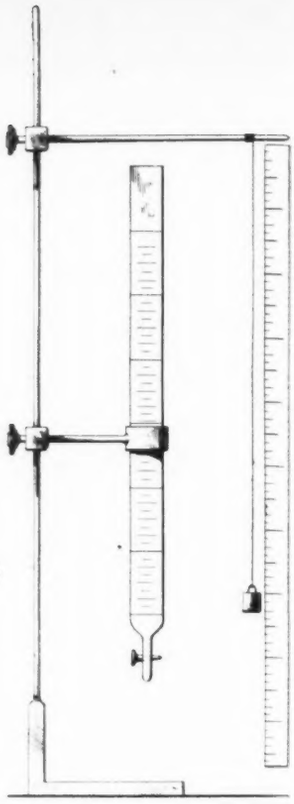
PRACTICAL TESTS FOR EVALUATION OF

Wetting Agents

By Karl M. Herstein, F.A.I.C.
Consulting Chemist

Draves-Clarkson method

Submersion test after Landolt



Shrinkage test with mercerizing solutions

WITH the great variety of wetting agents of radically different structure now available, it is meaningless to attempt their evaluation for any particular purpose except under conditions which simulate that purpose. For example, a wetting agent may be needed in a mercerizing process where it must work under strongly alkaline conditions; again, the need may be in a carbonizing process where acid will be met with. In either case, a test in neutral solution will mean very little with respect to either process mentioned above. Therefore, if the test is to give a true measure of the value of a wetting agent under conditions of actual use, it should be carried out with solutions of the constitution, concentration, and temperature employed in mill practice.

Attempts have been made to formulate absolute criteria of the effectiveness of wetting agents by measurement of the degree to which they lower the surface tension and viscosity of solutions to which they are added. The methods available for the easy determination of these properties are less sensitive, however, than the direct comparison of wetting power. Many "methods" for making this comparison have been published, each "method" simply representing an author's preferred technique. They can be divided into four general groups, as follows: (1) Weighing the amount of solution absorbed by a fabric sample of predetermined area and weight in a given time interval; (2) Determining the time for a measured volume of solution to be absorbed by the sample; (3) Determining the rate of capillary rise of the solution in a strip of the sample; and (4) Determining the time interval in which enough air is displaced from the sample to permit it to sink in the solution.

The first method mentioned can yield excellent comparative results, but the care and precision required in its manipulation make it poorly adapted for practical work. The second method is usually applied by permitting a definite number of drops of solution to fall from a given height onto a sample of cloth and the time for them to be absorbed is noted. This method requires little in the way of apparatus, but is too troublesome to control for any purpose except immediate comparisons. Similarly the capillary-rise method is difficult to observe accurately and its results are variable with room temperature and humidity.

In general, therefore, the sinking-time method as developed either by Draves or Landolt is preferred by the author. Both are simple in application and give good reproducible results. In fact, they are so simple that it is recommended that the average results of about five tests on each agent at each strength be used. Landolt (*Textilber.; 9, 759*) uses a wire so bent that the cloth sample is held vertically at a fixed distance below the surface of the solution until it commences to sink. Draves (*Amer. Dyest. Rep.,* 20; 201) uses a small test skein of yarn slit at one end and held down at the other by means of two sinkers, a heavy and a light one. The latter acts as an indicator of the moment of sinking. The temperature of the solution must be carefully controlled, as must also the moisture content of the textile used as a sample, if one day's results are to be accurately comparable with those of another day.

For the special case of agents to be used in mercerizing, Landolt advocates a modified test which is specially adapted to give information regarding this use. The lye containing a suitable amount of wetting agent is placed in a long vertical tube, such as a burette. A single length of yarn with a 2-gram weight attached to hold it down is supported beside the tube, and the bottom point noted on a scale. The yarn is then submerged and the rise of the end of the yarn due to shrinkage is noted in a given time. This shrinkage is then calculated to percentage of the entire submerged length, and the result used as the basis of comparison.

It should be borne in mind in comparing any two wetting agents of different constitution, that it is the relative concentration of each which gives the same sinking time which should be the basis. In other words, a series of tests of each agent should be made at different concentrations and the result stated that $X\%$ of material A gives the same sinking time as $Y\%$ of material B. It then follows that the cost of the two agents will be the same if the price of B is X/Y times the price of A.

SPEEDING PRODUCTION IN

By G. L. Atkinson

Finishing Worsteds

IN FINISHING worsted fabrics, worth-while savings in time and cost often can be effected by making a slight change in the system of handling the goods prior to crabbing. Thus the practice in some plants is to lay out the pieces in the gray room and put them in boxes or trucks which are pushed behind the crabbing machine. If this method is followed, the preparing department will soon be cluttered with trucks, valuable space will be occupied, and work in other departments may be held up for lack of trucks. In addition, if a special piece is required quickly, and this is at the bottom of a truck, all the goods on top have to be lifted out in order to obtain the required piece. This involves waste of time and often causes unnecessary moving about of trucks. The so-called roll or beaming method, a description of which follows, has none of these disadvantages.

In the beaming method, the pieces are measured in the gray room for width and length, and each piece is weighed accurately. Next the pieces of the same width which are to be crabbed by a similar method are sewn together in the usual way. For example, about five pieces are sewn together, then two cotton wrappers—each about 7 to 8 yd. long, next another five pieces, two wrappers, and so on until about twenty pieces in all are stitched together. In addition to the wrappers separating each lot of five pieces, there should also be an end cloth about 12 yd. long at each end of the section.

After the pieces have been sewn together, they are taken to the winding or beaming machine and wound full width on a wooden shell. Fabrics, such as heavy serges and overcoatings, which do not require crabbing can be run into boxes by means of the cuttling mechanism. With this method, there are no pieces which stand a long time to become badly creased. Likewise, when production is stopped at night or over the week-end or holidays, the pieces are protected from dust, dirt, and risk of iron stains or discoloration from condensate. Danger from mildew, which might occur if the pieces were allowed to stand in a wet box or truck, also is avoided.

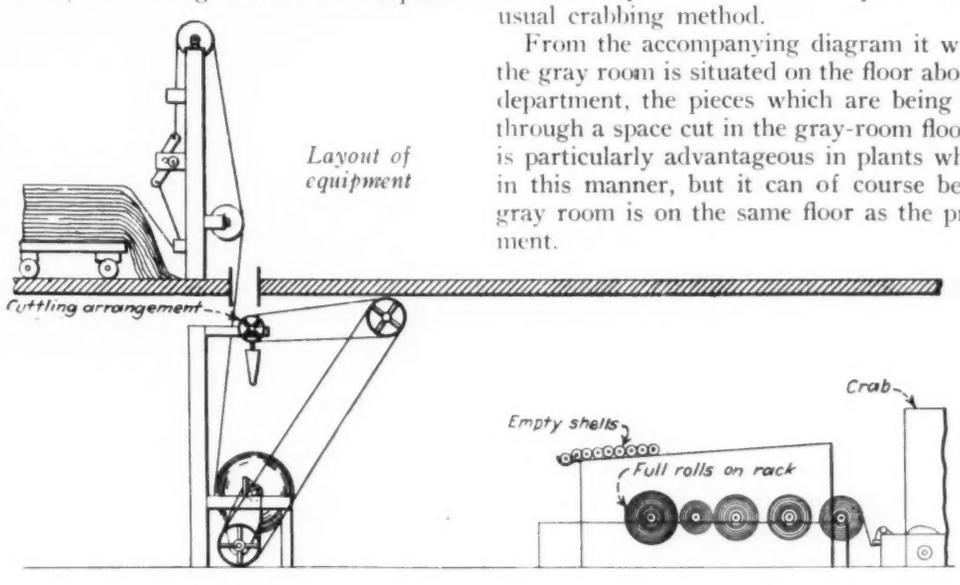
Behind the crabbing machine is built a rack two tiers high constructed of iron or steel rails. The lower rails hold the full rolls of cloth, and the top ones the empty shells. The upper rack should slope slightly downward to enable the empty shells to roll to the end of the rack which is nearer the beaming machine. A socket is provided on each of the lower rails of the rack at the end near the crab to accommodate an iron gudgeon which supports the rolls of cloth. It is essential that the rack be so located that the shell on which the goods is wound is parallel with the roller in the first bowl of the crab. This insures true running of the pieces into the machine.

To start the crabbing operation, one roll of cloth is placed in position on the rack with the gudgeon in the socket, and the outer wrapper is threaded through the tension rolls of the crabbing machine and round the first bowl. The water is brought to the proper temperature, the steam turned off, and the machine set in motion. The goods run into the machine under a uniform tension and without creases or folds.

The crab is allowed to run until the wrappers at the end of the first five pieces are reached, the wrappers are unfastened, and the one at the tail end of the fifth piece is run onto the crab, while the other is ready for threading up for crabbing of the next five pieces. When all of the pieces on the shell have been crabbed, the empty shell is placed on the upper rail of the rack, in readiness to return to the beaming machine, and the next full roll of pieces is brought forward and placed in the sockets.

A small card carrying the lot numbers of the goods can be placed on the side of the roll. The foreman can then tell by a glance at the cards exactly what lots are ready to be crabbed. White cards can be used to denote goods for which normal time is allowed for delivery, red cards for goods requiring urgent attention, and blue cards for special lots which require modification of the usual crabbing method.

From the accompanying diagram it will be noted that the gray room is situated on the floor above the preparing department, the pieces which are being beamed passing through a space cut in the gray-room floor. This method is particularly advantageous in plants which are laid out in this manner, but it can of course be used when the gray room is on the same floor as the preparing department.



Layout of equipment

Water-Treatment Problem

AT PRINCETON RAYON CO. SOLVED IN UNUSUAL MANNER

By Edward P. Schinman and S. B. Applebaum
Chemical Engineer and Vice-president, respectively,
The Permutit Co., New York

IT HAS been definitely established that the water used in the bleaching, dyeing, and finishing of rayon should be free from turbidity and suspended matter; should be as low as possible in color, organic matter, iron, manganese, and aluminum content; and should be of zero hardness. Also, since rayon fibers decrease in strength when wet, it is essential to perform all wet processes in a minimum of time, and this cannot be done in a water which is not clear and practically free from color. For these reasons one of the most important factors in locating the Princeton Rayon Co. plant (now Princeton Co., Inc.) at Watertown, Conn., was the availability of an adequate supply of water, which after proper treatment, would be suitable for rayon processing.

At this plant there are two sources of water available—city water, and a pond water. An analysis of each of these supplies is shown in Table I. From the analysis of the city water, it is seen that it is clear and practically free from color, turbidity, and organic matter, but that it contains a hardness of 2 to 3 grains per gallon. From the analysis of the pond water, it will be noted that this supply contains considerable organic, coloring, and suspended matter and an objectionable quantity of iron for use in rayon processing. The hardness of this water is practically the same as that of the city water.

The city water, therefore, required only softening to make it suitable for rayon processing, and the pond water required clarification beside softening. The pond supply, however, was available at no cost besides that for pumping, whereas city water would have to be purchased. In order to determine which supply would be most economical to use, a study of the treating costs including fixed and operating charges was made. The study showed definitely that it would be far more economical to clarify and soften the pond water than to use the city water and soften that. Therefore it was decided to use the pond water.

Preliminary Tests

Preliminary tests were conducted on the pond water to determine the method of treatment that would be most efficient and economical. These experiments showed that satisfactory clarification could be accomplished by coagulation with aluminum sulphate and soda ash at a controlled pH of 6.6 followed by filtration through sand at a rate of approximately 1.5 gal. per minute per square foot of filter area. Sedimentation was found to be unnecessary with the condition of the pond water, as given in the analyses in Table I. However, because of the fact that the pond may become very turbid at times, provision was made in the design of the plant so that a sedimentation tank could readily be installed when the raw water showed any large increase in turbidity and organic and coloring matter.

After the most efficient treatment had been determined, it was necessary to select equipment which would be accurate in feeding the correct amount of aluminum sulphate and soda ash in proportion to the flow of water, so that the pH would be kept at the optimum value for most effective clarification. For this purpose an electro-chemical feed (TEXTILE WORLD, June 20, 1931, p. 52) which was developed in the last few years was decided on. This electro-chemical feed, shown schematically in Fig. 1, operates as follows: A water meter is placed in the raw-water supply line. After a small number of gallons pass through this meter, an electric contact is made, starting a small motor, which operates the chemical feed. The motor continues to operate for a definite number of revolutions and then automatically stops, completing a cycle. These cycles takes place at frequent intervals so that the flow of chemical is practically continuous. The solution in the chemical tank is fed through the open top end of a swing-joint draw-off pipe. As the motor rotates, this draw-off is lowered, discharging a definite depth of solution. The volume of chemical solution fed for each cycle is constant; and since the volume of water for each cycle is constant, the feed insures the correct dosage of chemicals to every gallon of water treated.

The coagulated water enters the top of a sand filter, where it is uniformly distributed over the filter bed. The water is clarified by passing downwardly through the filter at a slow rate. It is then uniformly collected by a header lateral strainer system in the bottom of the filter. The turbidity and the aluminum floc (formed by adding the chemicals to the water), which coagulated the organic and coloring matter, are strained out on the surface of the sand. These in turn are removed from the filter by backwashing the filters at periodic intervals, usually once every 24 or 48 hr., depending upon the amount of water passed through and the amount of dirt removed.

In order to obtain water of zero hardness, a zeolite softener was installed (Fig. 4). Since the advantages and basic principles of this method of softening are generally well known, it is unnecessary at this time to discuss the construction or operation of the zeolite softener.

It was estimated that 300,000 gal. per 12-hr. day would be required, with the possibility that 600,000 gal. would be needed in 24 hr.; accordingly, clarification and softening equipment to take care of this load was installed during the summer of 1931.

A schematic layout of the equipment installed is shown in Fig. 2. Raw water is pumped from the pond; the

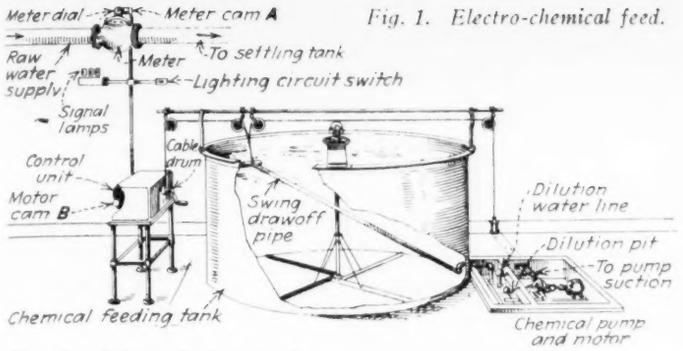
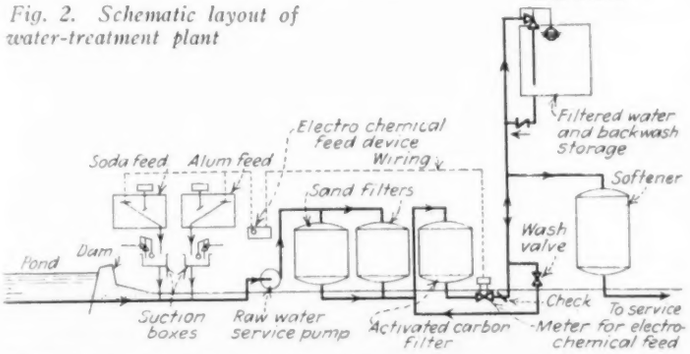


Fig. 1. Electro-chemical feed.

Fig. 2. Schematic layout of water-treatment plant



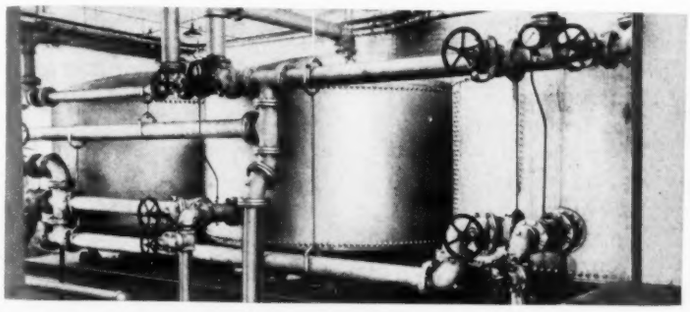


Fig. 3. Battery of two sand and one activated-carbon filters.

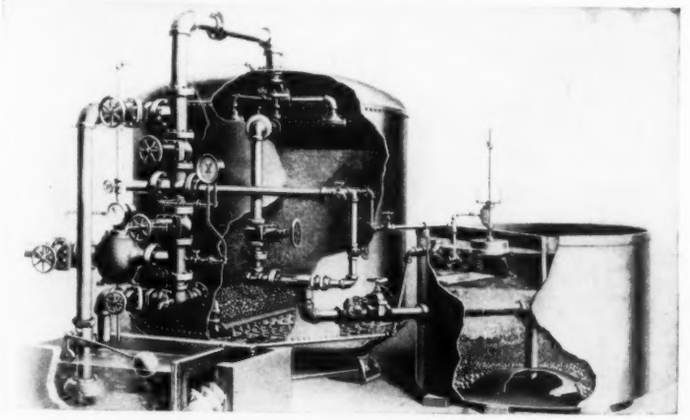


Fig. 4. Set-up of zeolite water softener.

TABLE I. Analyses of city and pond water — results in parts per million.

	City	Pond
Total Hardness	28	36
Calcium Hardness	12	16
Magnesium Hardness	16	20
Alkalinity, Methyl-Orange	18	22
Free Carbon Dioxide	20	8
Chlorides	6	11
Sulphates	8	10
Iron	0.2	0.6
Silica	12	...
Organic Matter	6	25
Turbidity after shaking	3	20
Color	10	50
Hardness in grains per U.S. gal.	2	2½

TABLE II. Analyses of raw and treated pond water — results in parts per million.

Raw	Filtered	Softened	In Mill
35	35	0	0
15	15	0	0
20	20	0	0
28	20	20	22
6	8	8	6
11	11	11	11
10	14	14	14
0.6	0.0	0.0	0.0
...	...	...	...
25	10	10	10
15	0	0	0
60	5	5	5
2½	2½	0	0

aluminum sulphate and soda ash are introduced into the suction side of the pump; the mixture of chemicals and water is passed to the top of the filters; and the water is clarified as it passes through the filters at a slow rate and then flows either to an elevated storage tank, or through the softener to the mill.

Since zero hardness water is also desirable for boiler feed purposes, because it does not form scale, sludge, or mud in the boilers, soft water is also used for boiler make-up.

A small sodium silicate feed of the pressure solution type was installed in the line going to the mill to prevent the possible pick-up of iron in the mill pipe lines. This silicate forms a thin film on the interior walls of the pipe and in this way prevents corrosion.

The highly satisfactory results obtained through the use of this equipment can be seen by examining the analyses of the water before and after the various steps in the treatment, as shown in Table II. It will be noted that the final treated water delivered to the mill is free from hardness, turbidity, and iron; and practically free from color.

Activated Carbon Filter

The plant was in continual successful operation for about a year and gave uniformly satisfactory results. During the summer of 1932 an extensive algae growth appeared in the pond. These algae growths imparted an aromatic odor to the water which was highly objectionable. Although the water was correctly treated, the odor persisted to such an extent that it was noticeable in the finished garment. It was essential, therefore, that the odor be removed from the water. Copper sulphate was used in an effort to kill the algae. This, however, did not remove the odor from the water. Small-scale field tests were made by Mr. Schaller, chief engineer, and Mr. Bertrand, boss dyer, Princeton Rayon Co. and one of the authors (Mr. Schinman). These tests demonstrated that the odor could be completely removed by filtering the water through a granular bed of activated carbon. It was decided, therefore, to filter all of the clarified mill water through an activated carbon filter.

Careful examination of the operating conditions showed that the plant was not using as much water or at as high a rate as had been expected; therefore the actual rate through the filters was lower than that for which they were designed. For that reason it was decided to remove the sand bed from one of the three filters (Fig. 3) and replace it with activated carbon, which was accordingly done. With this arrangement the water passes from the pump through the first two filters in parallel; the filtered water then passes through the activated carbon for final filtration and odor removal, and next is delivered either to the elevated storage tank or direct through the softener to the mill.

The activated-carbon filter at the Princeton Rayon Co. plant, according to available records, is the largest activated-carbon pressure-filter unit in the United States. It has been in operation for approximately one year, and is continuously delivering a water free from odor, which, combined with the treatment described above, is an important factor in enabling this mill to produce a finished garment of the highest quality.

Spinning Combed Yarn

WITH LONGER DRAFTS

CONSIDERED IN GASTON CO. MEETING

COMBED yarn spinning and twisting problems were discussed at the meeting of the Gaston County Division of the Southern Textile Association, held in the Smyre Community House, Ranlo, N. C., May 11. Marshall Dilling, superintendent, A. M. Smyre Mfg. Co., conducted the discussion.

In considering the maximum drafts advisable for various length staples, with reference only to regular draft spinning, it was the consensus of opinion that a draft of 12 is about the limit for 1-in. cotton; a draft of 15 for $1\frac{1}{8}$-in. cotton, and a draft of 16 for $1\frac{1}{4}$-in. cotton. One member stated that on $1\frac{1}{8}$-in. Carolina cotton the breaking strength was about the same with drafts up to $12\frac{1}{2}$, but above that point the yarn was not as even nor the breaking strength as high. It was his opinion that $12\frac{1}{2}$ is about the critical point in drafting $1\frac{1}{8}$-in. cotton. Other members felt that a draft of 15 on $1\frac{1}{4}$-in. cotton is about the maximum. Chairman Dilling pointed out that strength and twist of roving are largely responsible for obtaining good quality in spinning with longer drafts. He reported drafting up to 17 with $1\frac{3}{16}$-in.

W. N. Williams, superintendent, Laboratory Cotton Mills, Lincolnton, N. C., in reply to the question regarding evenness of yarn with drafts longer than those generally used, stated that a draft of $14\frac{1}{2}$ showed no difference in this respect, as compared with draft of 11, but that the breaking strength began to suffer when the draft was increased to 15 and above, running regular rolls. Another member reported substantially the same experience and favored a draft of 12 for $1\frac{1}{8}$-in. cotton.

Changing from regular to light middle rollers, according to A. P. Richie, superintendent, Dixon and Trenton Cotton Mills, Gastonia, N. C., permitted longer drafting, although it was necessary to have less twist in the roving. The change resulted in 2 to $2\frac{1}{2}$ lb. higher breaking strength on 80s spun from $1\frac{1}{4}$-in. cotton. He set the rolls as close as possible. Mr. Richie increased his draft from 10 to 14 after the installation of light middle rolls which weigh about 1,500 or 1,600 grains.

Experiments with long draft frames, drafting 20 to 21 on 50s and 60s combed yarn, were said to have produced higher breaking strength than the same numbers spun on regular frames. All mills that have installed long draft were said to have obtained stronger and more even yarn, but part of the credit was attributed to improved preparation in the card room. It was said to be necessary in many cases to increase the break draft in order to get more even yarn with long draft spinning. The proper drafts for $1\frac{1}{4}$-in. cotton on long draft frames were said to be 21 to 22, with no reduction in speed as compared with regular frames.

Cork cots for spinning rolls were next discussed. One member reported three years of experience with cork rolls on 30s to 50s combed yarn. He has cork rolls rebuffed every eight months and finds it necessary to replace very few rolls. Another member who has 64 spinning frames with cork covered rolls finds that there is not as much lapping up as with leather rolls. He recommended that cork rolls be not run more than eight months, day and night, before the first rebuffing.

Chairman Dilling, who declared that he was in favor of cork-covered rolls, stated that the first cost of cork cots, installed, is about twice as much as leather, but that they run twice as long.

Leather has been better this year than last, according to Mr. Richie, who uses good leather for spinning 120s. Several members stated that they prefer leather over cork for spinning rolls. One member found that some leather seemed to flake and split easier than it did two years ago.

The doubler was preferred over the spooler in preparing small lots, in making 4-ply or 3-ply yarn, in bobbins without a knot, before twisting. One disadvantage was said to be the fact that one end is likely to run ahead of another.

Steel travelers were said to give just as good results as bronze travelers on wet twisters, particularly on worn rings, and the life of the steel traveler is longer than bronze.

D. H. Whitener, superintendent, Myrtle Plant of Textiles-Incorporated, stated that comparative end breakage tests had revealed that there were about one-third less ends down with the self-oiling twister ring as compared with the plain ring. Another member stated that it is somewhat hard to keep clean and that the self-oiling (wick) ring must be oiled about every 36 hours. The traveler lasts about twice as long in the case of the self-oiling ring and there is no increase in the amount of black yarn.

There was said to be some advantage in having a large water roll on wet twisters, instead of a small size roll, if the larger roll is made light enough. Compressed air for cleaning wet twister ring rails was recommended by Chairman Dilling. This method was said to clean sufficiently and yet leave enough oil on the ring to enable it to run satisfactorily. Other means of cleaning were said to leave the ring too dry. William McLoud, superintendent, Rhyne-Houser Mfg. Co., Cherryville, N. C., has the ring rail wiped off with oily waste on a stick each time the twister is creeled. Gasoline, steam, hot water, etc., were not recommended because they all leave the ring in poor condition for the first doff.

The new executive committee for the division, elected after the technical discussion, consists of the following: Marshall Dilling, A. M. Smyre Mfg. Co., Ranlo, N. C.; W. N. Williams, Laboratory Cotton Mills, Lincolnton, N. C.; William McLoud, Rhyne-Houser Mfg. Co., Cherryville, N. C.; W. L. Long, American Combed Yarn Corp., Gastonia, N. C., and R. F. Harris, United Spinners, Inc., Plant No. 3, Dallas, N. C. The divisional secretary, L. R. LaFar, of Spencer Mountain Mills, Ranlo, N. C., will continue in that capacity.

L. L. Jones, general manager of Canton (Ga.) Cotton Mills, elected president, Cotton Mfrs. Assn. of Georgia

Georgia Mill Men

CONSIDER NATIONAL LEGISLATION AND COTTON PROBLEMS

FEDERAL regulation of textile manufacturing and various phases of raw cotton buying were the leading subjects discussed at the annual meeting of the Cotton Manufacturers Association of Georgia, at the Cloister Hotel, Sea Island Beach, Ga., May 18–19. Calling the meeting to order, President Norman E. Elsas, of the Fulton Bag & Cotton Mills, Atlanta, Ga., urged manufacturers to keep an open mind and to think out the problems presented in the light of the "New Deal," rather than to base their mental processes on previous concepts of business and law. While he did not mean to infer that industrialists should supinely submit to encroachment on their rights, he declared that "we may often change our minds as to what we consider our rights to be." President Elsas continued:

"The textile industry, along with flour milling, has been thrown directly into the arena of political and economic warfare, on account of the farm problem, and we have had no choice in the matter. However, we have been most fortunate in having such able men to represent the industry in Washington. It was my good fortune to spend several hours with Mr. Vereen last week-end, and I was amazed at the ramifications into which the new legislation may lead without the most thoughtful and forceful control. The proposed limitation of hours, shifts, etc., fades into insignificance as a problem."

After reviewing the major steps taken by the Federal Government to rehabilitate the economic life of the country, and following comments upon the various 30-hour bills and other proposals for relieving the unemployment situation, James A. Emery, counsel of the National Association of Manufacturers, in the feature address of the Thursday morning session, said in part:

"It should be squarely recognized that a revolution in political authority was proposed, for, if Congress, under the commerce power, may arbitrarily exclude any article which is not produced under the conditions which it fixes for intercourse between the States, then the control of all local operations passes from local government to Washington.

"The charge has been made that industry has failed to meet the existing situation. The answer is that, in cooperation with its workers in the face of the world situation, it has on the whole successfully maintained a larger force than has been required to produce the goods it could market. More than that, it has at no time been free, under appropriate Government authority protecting the public interest, to establish those forms of cooperation essential to the practical meeting of its problems. This it has now sought the opportunity to do. It answers an unworkable plan of drastic Federal regulation with the display of its earnest desire to cooperate with the Administration under a workable plan to permit the self-organization and self-control of industry."

The program of the meeting was changed because of the delayed arrival of W. J. Vereen and Howard E. Coffin, who could not reach Sea Island Beach Thursday morning. T. M. Forbes, of Atlanta, presented the annual report of the secretary, at the opening session, reporting that membership in the association has gained during the year. It now includes about 110 mills, operating a total of 2,500,000 spindles, or about 87% of the active spindles in Georgia. Excerpts from the secretary's report follow:

"In matters of national legislation we have worked individually and in cooperation with other trade associations in trying to protect the interests of the Georgia mills, especially in connection with the farm relief bill, the restrictive labor bills, and the effort to relieve the industry from the unfair competition of the Federal prison cotton mills.

"When the 1930 census occupational reports became available we brought up to date our study of child labor conditions which reveals even more clearly than before the fact that, if there be a child labor problem in Georgia, it is an agricultural one and is not industrial. Our survey shows that of the 59,684 children 10 to 15 years of age employed in Georgia in 1930, 47,795 were engaged in agriculture, and only 4,627 in *all* manufacturing and mechanical occupations."

The annual banquet was held Thursday evening, with President Elsas acting as toastmaster, and an inspirational address was delivered by the Rev. Pierce Harris, of Columbus, Ga. Howard E. Coffin, chairman of the board of Southeastern Cottons, Inc., who is responsible for the development of Sea Island Beach, was an honor guest at the banquet.

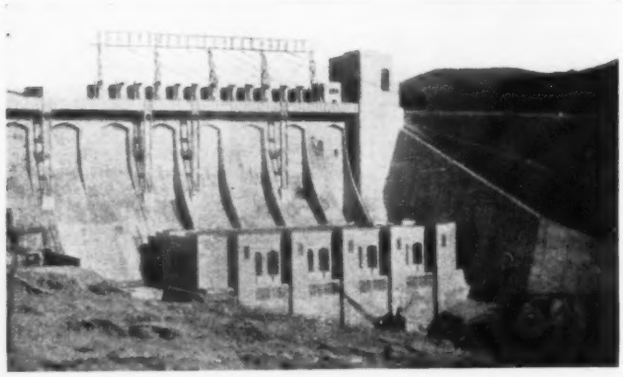
The Friday morning session, which was executive in character, consisted largely of a discussion of "Recent National Legislation Affecting the Cotton Manufacturers of Georgia," led by W. J. Vereen, of Moultrie, Ga., chairman of the legislative committee of the American Cotton Manufacturers Association.

George S. Elliott, manager and superintendent, Pacolet Mfg. Co., Mill No. 4, New Holland, Ga., presented a report on the work of the Textile Operating Executives of Georgia, of which he is vice-general chairman. Other routine committee reports were submitted. The raw cotton department of the association, headed by H. H. Greene, of West Point (Ga.) Mfg. Co., held a meeting Friday morning.

L. L. Jones, secretary and general manager, Canton (Ga.) Cotton Mills, was elected president of the association, succeeding Mr. Elsas. W. K. Moore, president, Crown Cotton Mills, Dalton, Ga., was elected vice-president and John H. Cheatham, president and treasurer, Georgia-Kincaid Mills, Griffin, Ga., was elected treasurer. T. M. Forbes and C. T. Kilgore, were re-elected secretary and traffic manager, respectively.

INVESTIGATION OF RATE SCHEDULES POINTS WAY TO LOWER COSTS FOR *Purchased Power*

By Morris C. Bishop
Consulting Engineer



◆ *How to bring power costs in line with other manufacturing expenses is a problem which many textile mills are endeavoring to solve. In our January issue J. J. McElroy, superintendent, Maverick Mills, discussed the advantages enjoyed by the mill which has its own up-to-date power plant; in our April issue Roy Reddie, consulting engineer, pointed out methods of preventing unavoidable waste and thus reducing the expense of purchased power. The following article by Mr. Bishop attacks the problem from a third angle—that of purchasing power to best advantage by making full use of existing rate structures and by obtaining more favorable schedules.*

THERE are many instances where it is not feasible for textile mills to install power-generating equipment. These mills must depend on the public-utility companies, and the purchase of power to best advantage is an important factor in reducing manufacturing expenses. Ordinarily, two methods are available for securing power from the utilities at lower costs—one is to make full use of existing rate structures; the other is to influence the utility company, or the state regulating commission, to modify these schedules to the benefit of the purchaser.

Many utility companies have found that it is a sound policy to render the highest quality of service to their customers, advising them as to recent rate changes and the respective advantages which may be gained through the purchase of electricity under the several contracts which are available. These utilities will make surveys of your mill and suggest ways in which you can reduce power costs. This, however, is a type of customer service which may not exist in your supplying utility. In any case, size up the quality of service which you are getting and make up your mind as to the real intentions of the utility. If its service leaves little to be desired, your possibilities of securing power at a lower cost will not be so great as in cases where the utility pays little attention to your particular problems.

Investigating Present Schedules

The procedure which should be followed in the investigation of existing schedules depends on many factors, the most important of which is the experience of your own organization in such matters. While rate investigations are best carried on by an engineer with experience in the rate field, a member of your engineering staff may be able to take care of the technical matters without calling in an outside man. Again, some executives without engineering or electrical experience have accomplished excellent results by studying the subject and acting in cooperation with the utility.

The first step is to secure a complete set of the rate schedules offered by your supplying utility and all of the regulations which concern the application of these rates. These schedules should be secured from your state regulating board, since some utilities do not care to give out all of their schedules. Secure, if possible, information on the decisions of the board in the different rate hearings of your utility, and the board's interpretation of the rate schedules in the different complaint cases. In addition, obtain a working knowledge of the public-utility act of your state.

When you have all of the schedules before you, classify them as follows: (a) schedules which exactly apply to your service conditions; (b) schedules which do not exactly apply to your service conditions but are possibilities; and (c) schedules which are eliminated from your consideration because they do not apply to your service conditions in any respect. Next take those schedules in Class A and apply them to your operating conditions for the previous year, figuring them out in dollars and cents of total cost. Follow the same procedure with Class B, and grade each schedule according to its advantages.

If your present contract is the best, you can secure no advantage by a change of contract; and the problem becomes one of making full use of the conditions in the existing contract. However, if another schedule will enable you to purchase energy at a lower cost, the problem becomes one of contract change. If the desirable schedule lies within Class A, you will have little difficulty in securing the change. On the other hand, if your conditions do not comply exactly with the conditions of the contract you want, the problem becomes one of changing your operations to come within the requirements. If, for example, you have been purchasing unrestricted service, an off-peak contract will show the way to lower current costs, providing such conditions may be applied to your operations.

There are a number of factors which affect the cost of power. The most important of these are as follows:

Basis of Service Charge—In small mills this may be based upon the connected load of the motors. If your

operations are curtailed to such a point that you can cut out part of your motors, and have such a reduction affect the service charge, it may be to your advantage to do so. If your service charge is based upon demand tests, find out when the test was made; and if your operations are curtailed, ask for a new test and a new rating.

These two methods are generally applied to small customers only, since a permanently installed demand meter is often more satisfactory to both the utility and the customer. Where such an instrument is installed, the course to follow in reducing the service charge is to control your demands wherever possible.

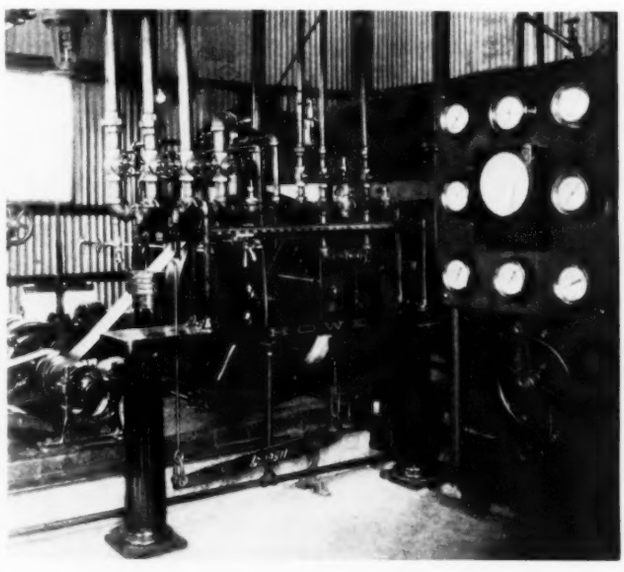
Lighting—In certain cases the lighting current may be metered through the power service and billed at the proper rate. There are wide variations in the restrictions placed upon this type of service. Usually the use of mill lighting is limited to a percentage of the total demand, with excesses over the allowable proportion of lighting carrying an additional charge. Since these service conditions may vary in the different contracts, selection of the most favorable schedule may reduce the total cost of lighting and power.

Service Voltage—Where special rate schedules are offered to customers who purchase at high voltages, it may be to your advantage to install a high-voltage substation and make use of such a contract. Such possibilities are usually open to large power customers only. However, if a discount of 5% or less is offered to those who maintain their own substations, it will seldom be of advantage to install the necessary transformers.

Restricted Service—Many forms of service limitations are found in the rates of different utilities. Off-peak service is the most general form, and one which ordinarily it is not difficult to comply with, providing the restricted periods occur in the early evening hours of the mid-winter months. If you have been purchasing unrestricted service, this form of rate represents one of the best means of lowering costs.

Power Factor—Most utilities have penalty provisions incorporated in their power schedules for low-power-factor service. Where these penalties are enforced, one of the best methods of improving conditions is to rearrange your motors so that they operate at or near full load. Where such methods cannot be employed, it may be advisable to install a capacitor or a synchronous condenser.

Auxiliary Service—If you have an obsolete generating plant which you have disbanded because the utility offered power at a lower cost, you may be able to recondition this plant and change it from a frozen asset to a profitable auxiliary. This applies particularly where you have a wide variation in your load conditions so that your own equipment will carry peak loads of seasonal or short duration. Careful planning and execution in the use of your auxiliary may reduce your power bill materially without a proportional increase in your operating costs. In fact, it may be to your advantage to install an auxiliary to take care of peak loads. If you have been generating all of your power, you may find that you can purchase a portion of your requirements to advantage. This is especially true in a plant which has wide variations in load.



Negotiating With Utilities

Very often the power company resents the intrusion of the itinerant engineer who renders rate advice. Therefore it is possible frequently to get better results in negotiating with the utility if you keep your technical adviser in the background and have your manager or superintendent take care of the conferences. If a rate consultant carries on the negotiations, it will be a battle of data and brains, with the power company usually having the advantage of data and taking the attitude that it will not yield a point beyond the exact conditions stipulated in the different contracts. Often lower rates can be secured only by some concession or stretching of the regulations. Such variations are usually held as confidential between the two contracting parties, and are knowledge which may be costly in the hands of a rate engineer.

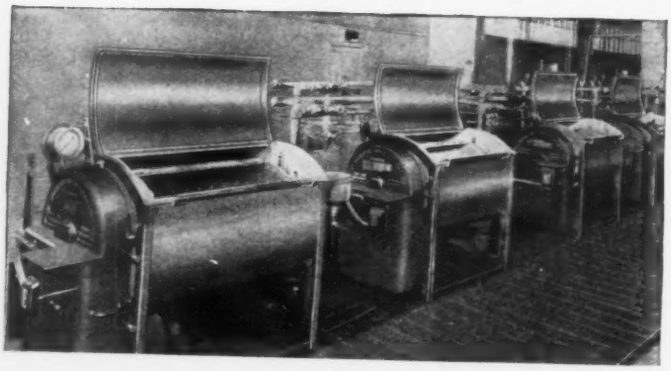
It is not out of place to add a word of caution concerning negotiations with the power company. You may be enjoying immunity from low-power-factor penalties only because the utility has chosen to ignore the possibilities in this direction, and you may be favored with other concessions which are not uncommon in the enforcing of contracts. If this be the case, proceed carefully before asking for further concessions. While the power company may allow certain changes, they may enforce extra conditions which will erase the advantages secured through the change.

Securing Rates Changes

In most cases, the utilities rely on existing schedules and resort to bargaining only when changes in the existing schedules or the addition of others will secure additional load or retain existing customers. For this reason it is necessary to be in a bargaining position before you can expect to have much success in getting the utility to modify its schedule to suit your purposes. While you may have the legal right to go before the regulating commission and set forth your arguments for additional or lower rate schedules, such a move is expensive and will be uncertain of results. On the other hand, the utility can usually add another optional schedule by the simple process of filing it at the office of the regulating commission. Obviously, the best method of securing a rate change is to work through the utility.

It has been pointed out that it is not always necessary to secure the services of a rate consultant in securing the advantage of lower rates. In fact, it will be to the interests of your mill to have a staff member who is capable of taking care of the different rate problems as they develop. On the whole, however, better results are assured where a consultant is called in at the outset of your program. This is particularly true when the engineer is familiar with the operating details of your supplying utility, has made a number of similar surveys in your territory, and is familiar with the practices of your state regulating commission. Whether or not you have the assistance of a consulting engineer, by taking proper steps to secure lower rates, you can in most instances effect worth-while reductions in your power costs.

Avoiding Defects



IN DYEING SILK AND RAYON HOSIERY

By George H. Clifton

MORE common among the imperfections in silk and rayon hosiery which can be traced to improper handling of the goods in the dyehouse are streaks, spots, and chafe marks. While corrective treatment will remedy certain of these defects, or at least make them less noticeable, preventive measures are more desirable. In the following discussion, therefore, the major emphasis will be placed on the precautions which the dyer should take to avoid these various faults.

It has been found that in the majority of cases streaks are caused by allowing the goods, while wet or damp, to remain in a wrinkled condition for too long a time. Contributory causes are uneven scouring or degumming, use of unsuitable dyestuffs or finishing materials, and insufficient rinsing of the hosiery subsequent to dyeing. A simple wetting-out in warm water, followed by extracting and reboarding, will sometimes remedy streakiness. Heavier streaks often can be cured by treating the goods in a warm solution of soap, sulphonated oil, etc.; rinsing well; and extracting and boarding without delay. If this fails, it may be possible to remove the defect by stripping and redyeing the stockings.

Prevention of streaks calls for the following precautions: (1) Do not permit the damp goods to lie for too long a time in a paddle machine before dyeing; (2) in the case of rayon hosiery, scour thoroughly before dyeing to make certain that all oils are removed; (3) rinse well after dyeing; (4) extract immediately after dyeing, but do not pack too tightly in the extractor or extract too dry; (5) after extracting, do not allow the goods to lie in a wrinkled condition so that localized drying occurs, but board as soon as possible; (6) make certain that the finishing oil or softener which you are using is of a satisfactory type.

Of the various types of spots found on dyed silk and rayon hosiery, those known as "nigger heads" or "nigger babies" are probably the most prevalent and the most difficult to avoid or remove. They are comprised of oils or fats, together with other impurities, and are caused by the breaking down of the emulsion of soap or oil with which the goods are treated in scouring, degumming, or finishing. This breaking down of the bath may be due to the use of emulsions which inherently are unstable; presence of excessive amounts of lubricant on the goods; use of hard water in the dyehouse; use of unsuitable combinations of finishing materials; or improper washing of the hosiery subsequent to scouring, degumming, or dyeing.

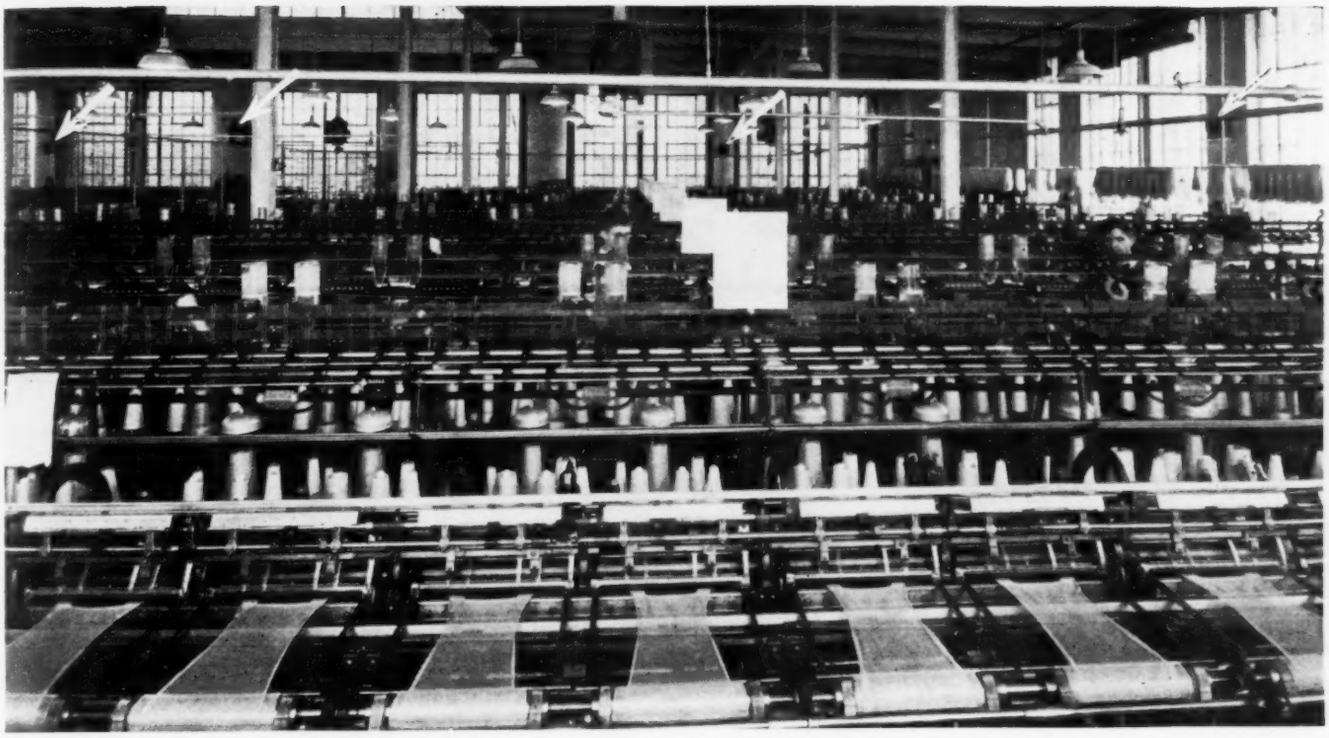
Removal of oily or greasy spots of this nature can be effected in some instances by giving the hosiery a thorough scouring in a detergent bath of good emulsifying power. Incorporation of a fat solvent with the detergent is often advantageous. At times dry cleaning has proved efficacious after usual mill methods have failed.

Whenever an epidemic of "nigger heads" occurs, the dyer should examine the various rinse waters for the presence of greasy, floating particles. If these are observed, do not just flood the machine, as some of the foreign matter will be entangled in the goods. Rather, add to the rinse water some sulphonated oil, or other emulsifying agent, together with a small amount of alkali; run the goods until the free oil or fat is thoroughly emulsified; then rinse in lukewarm water.

To prevent a recurrence of the trouble may require considerable experimentation. It may be necessary, in fact, to work out an entirely new scouring, degumming, or finishing formula and procedure. In the case of silk hosiery, for example, some mills have found it necessary, as a temporary expedient, to resort to the split-bath method of degumming, whereby the hosiery is first boiled off for 15 to 20 min. with 50 to 75% of the regular amount of degumming agent, this liquor discharged, and boiling off completed in a fresh bath containing 20 to 50% of the amount of degumming material used in the one-bath method.

Spots may occur also if the dyeing machine is not scrupulously clean. For this reason, at the conclusion of each lot, the equipment should be boiled out with soap and soda ash, or another good cleaner, and all adhering particles of dirt or grease removed by wiping or brushing. Rust spots usually can be removed by treating the hosiery in a warm dilute solution of oxalic or hydrochloric acid ($\frac{3}{4}$ to 1%), following this with a thorough rinsing to remove all traces of acid. Such spots, when traceable to the dyehouse, are due ordinarily either to the presence of iron in the steam or water supply or to contact between the hosiery and a rusty metallic surface. As a rule, no particular difficulty is encountered in locating the origin of rust spots and taking steps to prevent their recurrence from that particular source.

Chafe marks, which can be identified by the presence of numerous fibrillae where the fibers are broken, are due to the use of unsuitable dye nets, which permit abrasion of the hosiery by surfaces of equipment with which it comes in contact. Many dyehouses have turned to the use of muslin or cheesecloth bags, in place of the usual type of dye net, in order to prevent chafing.



Radio Entertainment

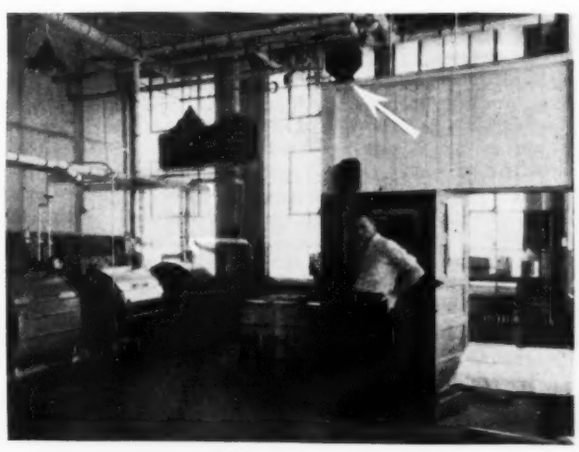
IMPROVES WORKERS' EFFICIENCY IN HOSIERY PLANT

NOT only does music have "charms to soothe the savage beast," but also modern radio has enabled it to reduce physical and mental fatigue, and thus to increase the efficiency of industrial workers. This last magic ability of music, more important in many respects than the power attributed to it by the poet, has been demonstrated in the plant of the Hatch Full-Fashioned Hosiery Co., Belmont, N. C. Commenting upon the radio system installed last fall by his company, J. M. Hatch, treasurer-manager, had the following to say:

"We are entirely pleased with the installation. It has increased materially the efficiency of our employees, given us more firsts, less seconds and waste. We find the music relieves the minds of our people from any outside worry and enables them to relax and to turn out better work than they were able to do before this system was installed. Our records show that seconds have been reduced approximately 3% since the radio entertainment was started."

The first radios were installed in the Hatch plant last fall primarily as an experiment, the immediate purpose being to provide the workers with returns on the world series baseball games. Observing carefully the effect of this entertainment on the operatives, Mr. Hatch discovered that, instead of interfering with the efficiency of the hands, there was a decided improvement in the spirit and zest with which they applied themselves. The radio put new life into the workers and tended to kill the monotonous sounds of the machinery.

There were technical difficulties to overcome in getting the radio installation to operate satisfactorily with so much interference in the plant. The Superior Radio Service Co., of Charlotte, N. C., tackled the job and succeeded in eliminating most of the static created by the machinery. Standard model Kolster radio sets, with the Kolster "rejectostatic" system of reception, were installed. Loud speakers were placed at strategic points throughout the plant so that music or other entertainment programs may be heard by every operative. There are about 115 workers on the payroll of the plant and it is Mr. Hatch's contention that any form of entertainment which contributes to their contentment and does not interfere with their work is a distinct asset. His experience is further evidence of value in creating favorable environment for employees. Arrows in illustrations show location of loud-speakers in the Hatch mill.



THIS DEPARTMENT—

offers a new subject for discussion each month and gives readers' comments on problems introduced in previous issues. The subject opened in April is closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "Machinery Salesmen in the Mill" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

▼

Overseers'

MACHINERY SALESMEN

"BILL seems to be missing," Superintendent Chase commented as the overseers settled down for the meeting. "Have any of you seen him?

"Never mind," he continued, "here he comes now. What's the trouble, Bill? Aren't you as anxious as usual for your regular argument?"

"I'm all set for an argument," Bill grinned, "particularly on the matter that made me late."

"What was that?" Superintendent Chase inquired.

"Well," Bill replied, "it so happens that the purchasing agent sent a salesman down to my department to demonstrate a new attachment. Now it's human nature for a salesman to pass on anything he finds out in a mill and, as I have a few kinks of my own in the department that I'd like to keep in this plant, I had to stick to this salesman like a leech so he wouldn't see anything he shouldn't. What's more, in addition to the danger of having the salesman learn something that the firm regards as its own, it takes up a lot of an overseer's time to have to ride herd on a bunch of salesmen, and the help also are inclined to get restless and inefficient with strangers around. There are exceptions, of course, but I think that there should be a general rule that all machinery and accessory salesmen should be kept out of the plant. If the purchasing agent wants to try anything out, let him give it to me direct."

Handling Mill Supplies

Editor, Overseers' Round-Table:

In these days when "efficiency" is the watchword in every mill and department, the check-up on supplies and materials should receive most careful consideration. One plan, working successfully, and, in my opinion, applicable to any mill is as follows:

All supplies (brooms, brushes, oils, starch, gears, harness and reeds, strapping, machine parts) are kept in a central stock room. This room, under the direct supervision of the plant superintendent, has in charge a man with a working knowledge of the requirements of the various departments and the ability to keep accurate records. A perpetual inventory is maintained so that, at any time, the quantity of any particular machine part or item of supplies is known, and can be reported without delay. This is made possible by a visible card filing system, a card for each type of accessory or part, and containing complete data as to price, amount, date of receipt and source, and weekly entries of quantities used.

Department heads requisition all ordinary supplies weekly, while replacement parts are given out only in return for the worn or broken part to be changed. Each department has one operative who does the "running." It is the duty of this hand, usually a sweeper or some other "low-priced" worker, to keep on hand the daily supply of oil necessary for his particular department, and to make other trips to the stock room, as required, for replacement parts, etc.

The stock clerk, as the man in charge of the stock room is known, orders his supplies and parts through the superintendent, or in large plants, through the purchasing agent, as the quantity on hand diminishes, making due allowance for the time elapsing between order and delivery. This routine applies to new parts required and on receipt they are cataloged and stored the same as ordinary requirements. The stock clerk reports his disbursements each week to the office and from that place is sent to each overseer the record for his department. In this way, the stock clerk, the office, and the department head all know just what is what in regard to supplies used, and excessive breakage or abuse of supplies can be easily checked and remedied.

No one is allowed to enter the stock room at any time, except those regularly employed therein or, of course, the superintendent. Thus the clerk is entirely responsible for the records and for supplies and parts on hand. Many overseers are likely to object to this method on general principles, but if they were accustomed to the plan, I am sure they would never countenance any other, since they are relieved of the necessity of keeping a check of parts and supplies on hand. "GEM"

Editor, Overseers' Round-Table:

I am in favor of a central supply room with one man in charge. He should be instructed to issue no supplies except upon a written order from an overseer. The stock room should be fitted with numbered bins in which all small supplies and parts should be placed. A card index system is helpful in keeping accurate cost and inventory records. Each card should contain the following data: name of article, bin number, catalog number (if a machine part), name of firm from whom purchased, cost, and the quantity on hand. As new shipments are received they should be added to the amount on hand, and as requisitions from overseers are filled, the quantity issued should be deducted. The use of this system daily permits the mill to obtain an accurate inventory of supplies from the file in a short time.

When the quantity of any item on hand drops below the minimum, the supply clerk attaches a red tag to the card. When the order for that item is entered, he removes the red tag and puts on a blue tag. This keeps an accurate check of all supplies that are low and also prevents duplicate orders being placed.

The above system may seem complicated but it is really simple enough for one man to install and maintain. I believe it will more than pay the wages of the man by making possible lower investment in inventories, and the fact that no machine will be forced to remain idle because of lack of supplies or parts. By having different colored

Round-Table

IN THE MILL

"I think any such rule would be plain foolish," Pete countered. "In the first place, all this talk about 'secrets' is usually a lot of bunk. I can't imagine any real secret that could be found out by a casual visit of a salesman. Things aren't that simple. Further, if you keep salesmen out of the plant you are going to cut off one of the ways that an overseer learns things. Suppose I'm a boss finisher and a new soap comes on the market. I certainly want to have the salesman for that soap come around to the plant and demonstrate the best way to use it. Otherwise I might well be following an inefficient method. The same principle holds true whether the salesman is handling spinning machinery, lug straps, or belting. Bill says to have the purchasing agent send anything to him direct. Now you know how wise that would be in the case of some new gadget that Bill had never seen. As for myself, I'm always glad to have a salesman who knows his stuff come into my department. As a matter of fact, there have been times when a salesman has stayed for several days checking up on things."

Do *you* believe that machinery and accessory salesmen should be allowed free access to the mill?

requisition blanks for each department, the supply room man can easily make out and deliver a monthly or weekly supply cost report for each department.

"SOUTHERNER"

Editor, Overseers' Round-Table:

The average mill loses hundreds of dollars annually through the improper handling of supplies. Every cotton mill should have a centrally located supply room in charge of a competent man who would be accountable for stock on hand and for the delivery of supplies and parts to the various departments. Every bin should be plainly marked to indicate the size, quantity, type, etc. In presenting a requisition for a new part, the worn or broken part should be surrendered to the supply clerk, and once a week the superintendent and master mechanic should examine the damaged parts and select the ones that can be repaired to advantage. This will avoid scrapping machine parts that can be restored to good condition by a little welding or other inexpensive work in the machine shop.

If copies of all requisitions are sent to the superintendent's office, I feel that a substantial saving can be realized through pressure brought to bear by the superintendent and overseers. F. E. T.

Editor, Overseers' Round-Table:

The stock room problem can best be solved by a central supply room, where not only a perpetual inventory can be maintained, but also a very accurate check can be kept on where supplies are going. This calls for a card system with every item taken from the stock room entered on the proper card. For example over a short time some loom may be charged with breaking picker sticks. It is possible that some may break on one shift, while others break on another shift, so that the loom fixer is not able to discover the bad actor. However, the sticks being entered on the loom card, will show the stock keeper that something is wrong, and can call attention to this so the overseer can have the trouble fixed. By following the same method of checking on electric lights it may be possible to show that there are places in the mill where a change from rigid to non-rigid hangers can correct vibration damage.

C. A. PATERSON

Editor, Overseers' Round-Table:

Personally, I do not favor a general stock room for the whole plant and certainly not such a room where each overseer has a key and no particular man in charge. This would tend to create frequent mix-ups and friction as to who should keep the place in order. I would advocate each department having its own store room with the overseer in charge. This is the best system of keeping supplies in correct ratio with demand, and saves much time, red tape and money as compared with the central supply room even with a man in charge. It requires only a small room, properly managed and equipped, to take care of a large department. The overseer knows what and how much is required in the way of supplies and parts.

A. COOPER

Editor, Overseers' Round-Table:

Our plant at one time had a general supply room with 12 keys. Overseers and others would enter, take whatever they wanted, leave the room mixed up, make no note of what they had taken, so that no inventory could possibly be kept. Results of this situation are apparent. Many articles were lost, others were broken, while still other materials were wasted. When a certain article was needed immediately, it would be discovered that none was in stock.

Economy in time, labor and money is a direct result of having a central supply room. We solved the problem satisfactorily by employing a young man of eighteen whose sole duty it was to remain in the stock room. Overseers obtained supplies by handing him a written requisition, the amount wanted, and the date noted thereon. These were filed and record kept of how much material went to each department. The amount saved in time, the amount of materials saved, and the savings from reduced waste are enough to pay the wages of this extra employee—and still leave the mill a profit on the deal.

WILL HERMAN

SUMMARY

HANDLING SUPPLIES. Nearly 85% of the letters recommended a central supply room, in most cases with one man in complete charge, and urged that no parts or supplies be taken from the stock room without written requisitions from department heads. Less than 7% of the contributors were in favor of overseers having free access to the stock room which would be locked and unattended. Another group of letters, representing about 8% of the replies, favored the plan of each department having its own stock room in direct charge of the overseer.

NEW MACHINERY

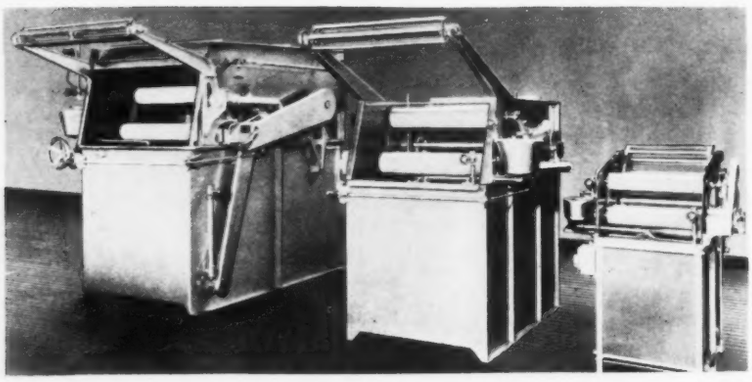


Fig. 1

Scouring, Fulling, and Dyeing Machines

SCOURING, fulling, and dyeing of circular knit goods can be carried out consecutively in one piece of equipment by use of a new type of machine brought out recently by Grand Rapids Textile Machinery Co., Grand Rapids, Mich. These machines are regularly available in 1-, 4-, 10-, 12-, and 14-string capacities, three of these sizes being shown in Fig. 1. A unit of three white rubber rolls is provided as standard equipment on each machine. These rolls are arranged like a pyramid, the top roll resting on the cloth in the center of the trough formed by the two rolls in a horizontal plane. This arrangement exerts a bending action on the cloth, not only facilitating scouring, but also permitting the fulling of light-weight materials. The top roll can be raised by a handle outside the tub, and it remains elevated when not in use (as in dyeing).

A combination of dye circular and steam syphon jets (Fig. 2) is designed to give a vigorous circulation and an even temperature throughout the tub. The dye circulator (necessary only in machines of 10-string capacity or more) consists of a power-driven shaft in the bottom of the well, with paddles 4 in. long and 4¼ in. apart the full width of the tank. The steam jets eliminate the noise that is generally considered concurrent with steam flowing into a liquid. All machines with the exception of the 1-string type are equipped with an unloading reel on the front. This reel is clutch-operated, running only when in use.

A change-speed gear box (Fig. 3) makes it possible to synchronize the speed of the three-roll scouring unit with the doffing reel, and thus to minimize lengthwise tension on the goods; or as is sometimes desirable in fulling, to effect a predetermined tension. Two 6-in. drains, which are operated by a handle outside the tub, permit quick draining of the machine. Rinsing is accomplished by means of a 4-in. perforated supply pipe which runs the full width of the tank just ahead of the reel. On the 10-, 12-, and 14-string machines, rinsing is further facilitated by incorporation of two spray pipes—one located above the scouring unit and the other above the doffing unit. A dye distributor bucket comes as standard equipment and is designed to lessen the danger from streaks. The machines can be supplied in either nickel-clad-steel or wood construction, as desired. Reels are direct-driven by means of a speed-reduction gear box, and all other mechanism is driven from the reel by roller chains on machine-cut sprockets.

The maker states that this equipment permits a total reduction of 50% of the usual processing time. In addition, it is said that stretching and chafe marks are eliminated, and level dyeing is promoted.

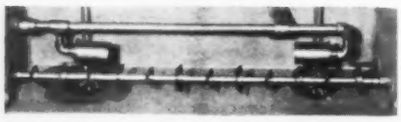


Fig. 2

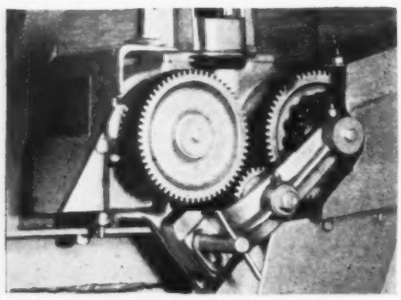


Fig. 3

Conditioning Thrown Silk

THE following description of three new developments in the conditioning of thrown silk has been contributed to TEXTILE WORLD by the technical staff of Jacques Wolf & Co., Passaic, N. J.

In the past setting of twist of silk crepe has been carried out ordinarily by immersing the bobbins of silk in water for a period of 5 to 12 hr. or by placing racks in an air-tight chamber and allowing moist steam to penetrate the layers and set the twist. After the twist is set, the yarn can be run in either vertical or horizontal positions, and no kinking will occur until the yarn is again subjected to immersion in water. In order to eliminate the variables in this process, an electric twist-setting apparatus has been devised recently by the cooperative efforts of a practical thrower, an electrical engineer, a ventilating engineer, and a chemical engineer. This equipment, which is made by Lydon Bros., 229 Colden St., Jersey City, N. J., is shown in the accompanying illustration. It is a thoroughly insulated chamber to prevent undue heat losses. The moist atmosphere is produced by electrical heating units immersed in a trough of water, and the air is circulated by means of fans located in ducts. Conditioning is controlled by rheostats and wet and dry control valves. When the set yarn comes from the box, it can be redrawn onto shipping bobbins immediately, whereas the old method required a dry-back time to prevent shiners or stretched yarn.

Similar cooperation between a thrower and engineer has led to the development of two new types of apparatus

for conditioning hosiery yarn. These devices are made by the Pottstown Silk Throwing Co., Pottstown, Pa. One is a portable conditioning cabinet which needs only to be plugged into an electric socket. After the coned yarn has been subjected to a treatment in this cabinet for 1 hr., it can be used directly in the knitting operation. A supplementary electrically heated circulating-water trough is the second aid to the knitter. This consists of an electric heating-control element immersed in the water trough, on the knitting machine. The trough is connected with the city water supply, and the level is kept constant by means of a float control valve. The heated water is circulated by a small centrifugal pump to insure a constant temperature.

With these new types of electrical apparatus, many of the variables in setting twist have been overcome; and as a result imperfect yarn and poorly woven fabrics caused by thirsty silk can be minimized.

Dobby-Weave Designs

ELABORATE weave designs produced by the new "Delamare" system of dobby designing, already creating interest in France, England, and Italy, have been brought to this country by Theodore D. Shaw, Room 1621, Pennsylvania Hotel, New York. The designs are being produced for sale by Les Nouveaux Procedes de Tissage, 113 Bis Avenue de Neuilly, Neuilly-S-Seine, a suburb of Paris. Mr. Shaw has brought with him some 10,000

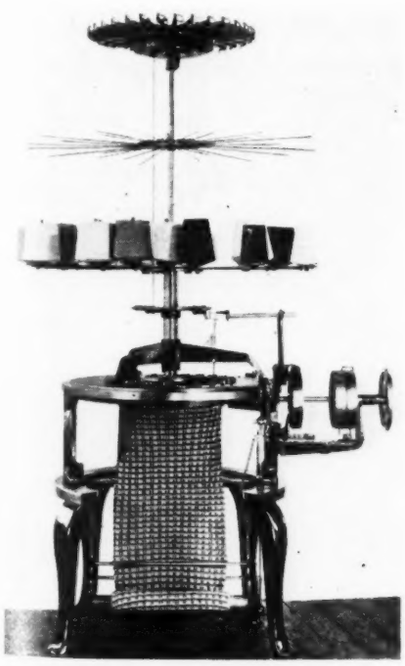
AND PROCESSES

samples of various cotton, wool, silk, and rayon fabrics from which a mill may select those designs which it wishes to reproduce. The drawing-in and chain drafts are then supplied by Mr. Shaw and become the exclusive (so far as America is concerned) property of the mill purchasing them.

Low prices for the designs are made possible by the nature of the Delamare system, which is a mathematical method for exhausting the possibilities in countless combinations of entering and shedding specifications. For example, for every drawing-in draft on eight shafts or harnesses there are 238 different combinations or groups of shafts from two to six in number which can be raised for one shed. With twenty shafts, there are 1,048,534 possibilities.

Circular Jersey Machine

HIGH production in the manufacture of knitted designs and fancy fabrics for sweater cloths and dress goods is claimed for a new circular latch-needle machine of the jersey type developed by Tompkins Bros. Co., Syracuse, N. Y. Multiple feeds are employed to obtain various pattern effects—a 20-in. machine, for example, having 26 feeds, any number of which may readily be taken out of action. A double needle plate gives additional support to the needle and allows the complete drawing and finishing of one stitch before the adjacent needle starts to pull the next stitch, the reduced strain on the yarn permitting a wide variety of yarns to be run. The machine has been especially constructed to keep the needles and sinkers free of dirt and lint to avoid clogging. A sensitive sinker-cam action automatically takes care of slugs or bunches encountered in the yarn. Attention has been given to attaining simplicity of construction, ease of operation, and ability to change quickly from one pattern to another.



Single-Strand Tester

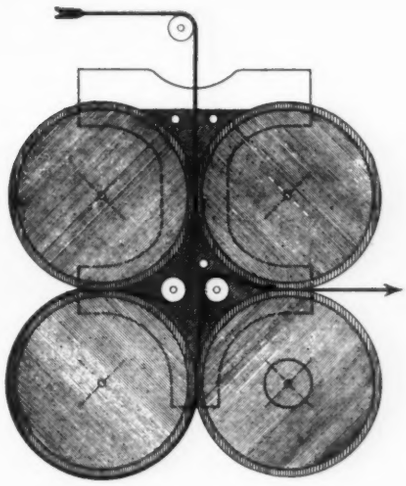
FOR strength and stretch tests of a single strand of yarn, the Henry L. Scott Co., Providence, R. I., has developed a rugged, practical, low-priced machine of precision accuracy to meet routine mill conditions as well as laboratory requirements. The tester is designed to permit an inexperienced girl to conduct 600 tests per day without undue fatigue. The cam-type flat jaw clamp may be instantly tightened on the yarn by a touch of the finger, and another touch of the finger will serve to start the machine. A glance at the scales serves to read both the strength and stretch records, which are always directly in front of the operator at the same place all the time and are spaced 2 in. from each other. The dial scale which is not in use is covered by the pointer mounting in order that there will be no danger of the operator reading anything but the proper figures. A final touch of the finger releases the control, allowing gravity to do the formerly laborious operation of returning the lower clamp to starting position.

The head is of the inclination-balance type with a load scale which moves behind the fixed pointer. A toothed quadrant and multiple pawls are provided to prevent drop-back. The machine is available in various capacities up to 20 lb. In order that the zero position will not be disturbed while specimens are inserted, the upper clamp is locked in position during loading. The stretch scale, which is graduated in 1/10 in., is easy to read in either percentage or direct measurement of elongation. The machine is motor driven, giving a positive speed of pull at always the same rate.

Padder for Dyeing Mercerizing, Finishing, etc.

ANNOUNCEMENT of the Convex Super Padder, a radical innovation in equipment for the wet processing of fabrics or warps in open widths or sheet form, has been made recently by A. W. Buhlmann, Inc., 551 Fifth Ave., New York. This machine can be employed in dyeing, mercerizing, finishing, etc., and can be operated as a separate unit or in synchrony with washers or other types of equipment.

It will be seen from the accompanying sketch, that the Convex differs from conventional forms of padding machines in that four adjustable crusher rolls and lateral sealing plates are so arranged as to form an air-tight chamber for the dye liquor or other solution. The chamber has



a capacity of approximately 4 gal. If desired, the space above the two top rolls may be utilized as an additional chamber for preliminary treatment, thus permitting three immersions of the fabric in the solution with a squeeze between each dip into the bath.

While the padder is suitable for applying all classes of dyestuffs, it is believed to be of particular advantage in the case of vat (in either reduced or pigment form), sulphur, naphthol, Indigosol, and other colors which have a tendency to foam or to oxidize prematurely on exposure to air. Since replenishment of the dye liquor is automatic and is proportionate to the amount taken up by the material, tapering-off in color is avoided and dyestuffs of varying affinities can be employed without danger of uneven shades. In addition, consumption of dyestuffs is reduced to a minimum. Use of a spray printing attachment permits the Convex to be utilized for the production of a wide variety of fancy or novelty effects. The padder can be threaded in eight different ways and is designed to prevent drag or tension on the fabric, thus making it possible to handle delicate fabrics without damage, as well as to obtain good penetration on heavy, tightly woven materials. Another feature of the new padder is the provision for control of temperature of the bath.

Motors with Thermostats

TO GIVE adequate protection against overheating in industrial motors, the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., announces a line of "Thermoguard" motors having a built-in disk thermostat that functions before the temperature of the insulation reaches the danger point. For the first time, the combination of a motor with built-in thermostat and a control device with a separate thermal overload relay meets all requirements for motor protection against burnouts. Thermoguard motors may be arranged, at the option of the user, either to be disconnected from the source of power when the temperature approaches the danger zone, or to indicate by giving an audible or visible signal when an unsafe temperature is being approached. On unattended applications, it is possible to arrange the control so that the motor will automatically re-start when it has

cooled to a safe operating temperature. Motors included in the Thermoguard line are the induction, direct-current, and synchronous types.

Hosiery Finishing Machine

A NEW type of hosiery finishing machine has been placed on the market recently by Paramount Textile Machinery Co., 538 South Wells St., Chicago. Operating principles of this equipment, which is known as the Dual-Heat hosiery finishing machine, are made clear by reference to the accompanying illustration.

The new machine consists essentially of twelve drying forms mounted with their drying surfaces parallel and closely adjacent. In their drying position the forms are maintained in a vertical plane. An electric drive actuates the forms into and away from the boarding-stripping position. When all forms are covered with stockings and are in the drying position, the operator by touching a foot control causes two forms to move down simultaneously for stripping. With a single stripping operation the operator removes both stockings; and with another touch of the control causes one of the two bare forms to return to the drying position while she pulls a stocking on the form remaining down. This charged form, upon returning to the drying position, automatically brings down the remaining form of the two previously stripped. The return of this latter form properly charged with a stocking simultaneously brings two more covered forms into position for stripping, whereupon the cycle is repeated.

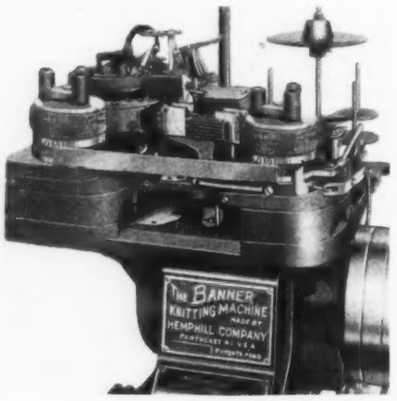
The Dual-Heat forms are designed to give a proportioning of two temperatures at the drying surface so that the sheerer portions of the stocking are dried at a suitable low temperature, and the reinforced or heavier portions at a suitable higher temperature.

Other advantages claimed for the form include simplicity and comfort of operation, flexibility, high production, and low operating and maintenance costs. The forms are steam heated, two steam inlet lines — one for chiffon, and the other for service weight hosiery—being provided.

Hosiery Machine Reverse Plates on Two Feeds

A DUPLEX 12-step double-feed reverse-plating machine is a new addition to the line of Banner hosiery machines built by Hemphill Co., Pawtucket, R. I. The machine provides for reverse plating on both feeds, affording an improvement over the company's previous double-feed 12-step machine, which provided for reverse plating on one feed only. The company claims one-third increased production on the new double-feed machine at no increase in labor cost. While no increased production is effected during the machine's reciprocal knitting of heels and toes, production is doubled on the straight-away knitting of legs and feet.

Pattern control for the second feed is effected by means of a dual 12-step pattern drum erected on the machine immediately in front of the cylinder with plungers leading to a second knitting point in the sinker head. The same type of 48-move pattern discs is used to control both first and second feeds. As patterns can be changed with no change in yarn tensions or adjustments to knitting points, the machine can be handled in the same manner as the regular 12-step.

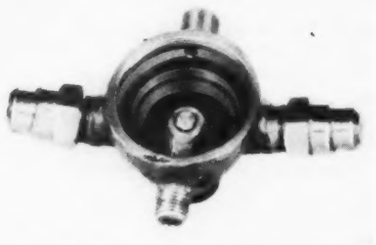


Through dual selection for pattern and color, three-color effects can be knit in a much wider range of patterns than is possible even with the regular Banner 12-step machine.

New Atomizer Head

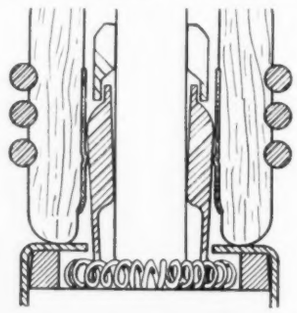
A NEW atomizer head in which have been combined the principles of gravity and pressure of water has been brought out by the R. I. Humidifier & Vent Co., Boston, Mass. The head consists of an air chamber and a water chamber having no connection with each other, but separated by a diaphragm. As the air pressure comes on, the diaphragm is depressed, the water port is opened, and the head begins to operate at once. When the air pressure is turned off, the water port closes and the head ceases to operate. At opposite sides of the head are outlets with specially designed nozzles. As the amount of water vaporized is controlled, the air pressure remains constant.

According to the manufacturers, a low air pressure is required, and with 20 lb. pressure the head will deliver, without precipitation, 35 lb. of water per hour, or any lesser quantity that may be called for. The manufacturers claim power cost approximately one-half that of previous models.



Brass Bobbin Bushing

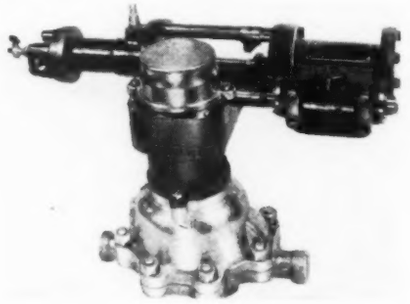
DRAPER CORP., Hopedale, Mass., has introduced the Stimpson patent brass bushing for its warp and filling bobbins. A projecting ring on the inner surface of the bushing gives double points



of contact on each leaf of the Stimpson clutch to hold the bobbin steady and is said to necessitate a forcible closing of the clutch before the bobbin can rise. Advantages made possible by this new bushing, in addition to the prevention of bobbin rising and wobbling, are said to be that the bobbin turns at the same speed as the spindle, is held central on the spindle, the yarn package is built more evenly with properly placed bunch.

Liquid Proportioning Device

PROPORTIONEERS, INC., Chicago, associated with Builders Iron Foundry, Providence, R. I., recently developed a device, known as a "Trēt-O-Unit," which is intended for proportioning fluids in various types of industrial installations. The device is said to measure the proper percentage of chemical, build it up to the necessary pressure, and inject it into the untreated fluid. The device is applicable to any fluid meter, rotor, pump or other flow responsive equipment.



Outlines Plan for Financing Modernization

"Modernization of textile plant equipment and facilities will bring better returns today than ever before," stated R. G. Macy, president of Improved Industries Corp., New York, in an interview with TEXTILE WORLD. He said:

"Not only can such improvements be carried out at less expenditure at this time, but many new developments have been made that are little, if at all, used. Use of these existing new developments would make possible the cutting of production cost and those who first take advantage of the opportunity to modernize their plants are in an exceptionally favorable position.

"Most mill managements are well aware of this situation but they have hesitated to consider the possibilities because of the apparent hopelessness of financing improvements under the conditions which have existed.

"Another factor with the textile mill has been that many mills have had much equipment not used with the volume of business which has been current during the last year or two. Where this was true, the management had little patience with proposals for installing more machinery. They did not consider that, in many cases, substitution of modern equipment for a relatively small part of their existing layout would make reductions in unit costs to more than balance the expenditure in a short time.

"Let us assume that the mill management has investigated the possibilities of modernization for their plant and knows just where it can make cost reductions by substituting new machinery for old. How will they finance such a program? Where the new equipment requires a relatively small outlay with respect to the plant value, and it is not advisable to meet the expense out of the company's funds, the management has heretofore had three possible courses: (1) Money may be borrowed from the bank by pledging the securities of the company; (2) Notes can be issued; (3) Financing can be procured through established financing companies.

"Should the money be borrowed on the company's securities, the interest rate will probably be low, but the financial status of the company will probably be disturbed. If notes are issued to the bank the credit of the company is involved in a manner that may prove objectionable. Use of financing companies involves signing of a note, which of course makes the obligation a direct liability. It is sometimes possible to obtain only 80% of the amount required, the balance to be a cash outlay.

"There is another way of financing modernization which appears to be rarely used, that is, to take the savings which would accrue from the company's production costs, and by strictly segregating these, amortize the cost of the new equipment.

"It is with these facts in mind that Improved Industries Corp. has developed a new method of financing modernization. The unusual features of this method are that a down payment is not essential and no notes are required for the purchase and installation of self-amortizing equipment. The money is advanced by our company and the mill enters into a contractual relation with us, whereby the actual difference in production cost is used to fulfill the contract within a specified period of time. Improved Industries Corp. pays the equipment manufacturer and holds title until the savings in production cost have fulfilled the contract, at which time title passes to the mill.

"This procedure makes it possible for any mill, without increasing its operating expenses, to modernize its equipment, and add the value of the new machinery to its assets."

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Merchandising in a Rising Market

A brochure entitled "How Shall I Merchandise in a Rising Price Market?" has been issued by the Gray Advertising Service. Particular emphasis is laid in it on anticipated activity of the retailer, with view to aid the manufacturer in formulating a plan of action. The report represents the combined experience of more than 100 department stores which focus on Kirby, Block & Fischer, resident buyers, for whom the Gray organization has acted as sales promotion division for eight years.

Among the conclusions are:

The price guarantee has certain merits which recommend it for consideration when price uncertainties become the order of the day.

Tendency to order larger quantities may be stimulated by a minimum order rule, but runaway buying should be checked.

Department stores are anxious to build up their unit sales, but when again on a profit-making basis they may be expected to fight price advances. Advertised prices will probably lag behind any general price advance.

Inflation will bring a change in the class of people who will become mass buyers. In the last analysis prices are set by the retailer and the manufacturer would do well to watch new retail price levels as they open up.

More and better skimping will come into play; skillful advertising necessary to carry quality goods. Advertisers must justify the price of their product.

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Southern Conference

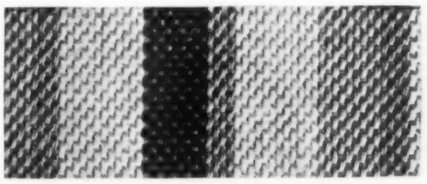
The 14th annual Southern Conference on Human Relations in Industry will be held at Blue Ridge, N. C., July 13-16, according to E. G. Wilson, of Atlanta, Ga., secretary. Speakers on the program will include Arthur H. Young, of New York; Harry N. Clark, of Cleveland, Ohio; and Frank P. Graham, president of the University of North Carolina, Chapel Hill, N. C.

Textile Wage Increases

THE wage-increase move, which started in a few southern cotton mills, as noted in last month's issue, has spread to every section of the country and to every branch of the industry. A list of the mills which have participated would be a roster of the majority of textile manufacturers. A scale approximating 10% above that previously in effect is almost standard today.

A New Textile Makes Its Bow

A new textile has made its appearance in the form of "Solka," a yarn produced by the Brown Co., of Portland,



Me., in its plant at Berlin, N. H. Both the process of manufacture and the finished product stand apart from the usual in the textile line.

The yarn has the following characteristics: Its stretch is very limited; it will not shrink; its fibers are round and generally short; the smooth surface gives clarity to colors; it can be lacquered; it can be subjected to very high pressures in calendering. Up to the present the finest size that has been produced commercially is 6s (cotton count), but it is expected that this figure will be pushed upward as the technique of manufacture is further developed. The yarn can be varied from a soft, weak strand to a hard, strong one. Single-strand tests on a 6/3 "Solka" yarn have shown a breaking strength of 8 to 9 lb. Various uses have already been found, but it is expected that the real place of "Solka" will be determined by the cooperative efforts of the Brown Co. and the textile industry in producing fabrics that make use of the distinctive characteristics of the yarn. Present market price lies between the cotton and rayon ranges.

The process of manufacture is extremely interesting. The Brown Co. is primarily a producer of paper and allied items. In the course of its research, much work has been done in deriving pure cellulose from such products as wood. "Solka" represents a combination of the cellulose fiber present in spruce wood or hemp and a manufacturing technique derived from paper-making. Briefly, the method is to float the fibers in water (dyeing is done at this stage), extract the water to form a thin film on a fine copper mesh, remove the film in the form of narrow strips, round the strips, dry, and then ply and twist in the usual textile manner.

The cellulose fibers used are so short that they could not possibly be "spun" in the usual manner, and one of the most interesting features of the whole development is the manner in which the Brown Co. has been able to produce a yarn in a manner entirely dissimilar to textile procedure. The company has about 40 different types of fiber pulp to start with, so there can be a considerable range in the types of yarn produced.

Uses for "Solka" yarn now under consideration: porch rugs, summer-furniture upholstery, beach sandals, beach wraps, millinery in combination with cellophane, handbags, and shoe twine.

QUESTIONS AND ANSWERS

Neps in Rayon Tops

Technical Editor:

We have recently had quite a bit of trouble with the specking of silvertone heavy overcoatings, although we have mixed in our blend nothing but the best white rayon tops. In using garnetted rayon waste for the silvertone effect, one naturally expects the neps to cause this trouble; but in using a clear white rayon top, a small sample of which we enclose, we are at a loss to understand why we should have this trouble. Can you help us to solve this difficulty. (7980)

Examination of the so-called clear-white rayon top disclosed four neps in about ten grains of the top. It is true, however, that the neps are difficult to see on quick inspection, due to the fact that the top is cut to 1 in. staple. It is suggested that if some of the top, before it is cut, be obtained and pull-outs of the top placed on black cloth, the neps will be quite noticeable.

To correct this trouble, provided the overcoating is a stock dye, one could get a similar effect by using cut mohair of proper grade in place of the rayon. If the fabric is a piece dye, which is probable, it is necessary to get a product free of neps. Theoretically, cut tops should be free of neps, but actually, few are entirely so, as all combers using Noble combs know. Some garnetters who have specialized on this problem have succeeded in producing a garnett which is more nearly free from neps than most rayon tops and is especially adapted to silvertone effects.

In any event, the most nep-free product can be made neppy in the subsequent carding of the blend, and it is suggested that a rather small amount of emulsion be applied to the blend in the picker house and that only the wool content of the blend be oiled.

The cards should then be gone over carefully to see that all clothing—whether on the breast or elsewhere—is in prime condition, sharp, free from any bad wire, and set closely and uniformly. Inspection can be made of the stock in the feed, side drawings, and ropings to find the section producing the neps, if any still show.

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Roshanara Crepe

Technical Editor:

Inclosed you will find two swatches of Roshanara crepe made with the same construction and with the same material in both pieces. You will notice that one piece creped perfectly while the other has practically no crepe at all. What is your opinion regarding this difference? (8002)

We find that the two swatches of Roshanara crepe are generally alike as to construction and material, but that there are fewer turns in the swatch that did not crepe. We are of the opinion, however, that this difference was not entirely the cause of the trouble, but that improper processing in the boil-off was responsible. We believe that if the defective material were boiled off properly, it would be found to be creped as much as the satisfactory material. When these swatches are taken in the hand, it is noticeable that the unsatisfactory one has a decidedly harsh feel, while the correct swatch has a soft feel.

Your throwster might be advised to watch the twist more carefully. In making fabrics of this nature, careful tests should be made to be sure everything is running smoothly.

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Fine Ends in Throwing

Technical Editor:

Is it possible in throwing high-twist silk yarn, considering the speed of all winders as being the same, the speed of all spinners likewise being the same, all tensions on winders and spinners being equalized, and the twist being the same, to obtain yarn with some fine ends other than those due to fine ends in the raw, fineness due to split ends not being considered? Are fine ends liable to be made finer in some instances? (8019)

In throwing one might make a fine thread finer by either stretching or twisting it higher and thus reducing the diameter. We know of no other method of reducing the size in throwing.

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Oiling Wool Mixes

Technical Editor:

We are mailing two lot mixes. We shall appreciate your advising us as to the quantity of emulsion which should be added to a 100-lb. mix when it is batched in the picker room previous to carding. Both mixes are for filling yarn, and are to be spun 11 cut. The content of each mix is as follows: No. 1—cotton, 12%; rayon, 10%; wool shoddy, 53%; and white wool, 25%; No. 2—cotton, 12%; rayon, 10%; wool shoddy, 74%; and white noils, 4%.

We shall also appreciate advice as to the method of arriving at the quantity of wool oil which should be put on stock. We have our own shoddy mill; but on many occasions purchase shoddies dyed to shades wanted. These shoddies always arrive with different percentages of oil.

Recently we have begun to weigh our roping and yarn, and we find there is a loss of from 20 to 25% in weight between the yarn and roping. We feel that this loss is entirely too great, yet we are in the dark as to how to locate the cause. (8007)

There are no standard percentages of oil for different types of stock. The materials used in blends vary so much that it requires expert knowledge and good judgment to determine trial percentages which will be modified by actual tests. Shoddy is usually oiled sufficiently, many times excessively, when it is made; and it is customary to refrain from oiling the shoddy in the blend. First-hand knowledge, however, must determine the decision here.

Garnetted stock and noils may have the oil content increased from 10 to 15%, according to quality. On clean wool the percentages of oil may vary from 8% for coarse wools to 15% or more for the finest wools.

Ordinarily, oil is not recommended for either cotton or rayon waste; and on this account some mill men prefer to blend shoddy and cotton, then pick it before using it in the blend.

The causes for the loss of from 20% to 25% between yarn and roping are waste and evaporation. It is possible to have a very high moisture content in the roping, but we doubt that moisture accounts for all this loss. Careless weighing may, of course, accentuate differences. A test for moisture in both the roping and the yarn would supply some of the necessary information; in fact, the waste should be tested also, because initially it was roping.

▼

Crepy Effect in Silk Hose

Technical Editor:

Will you kindly give us your opinion as to the cause of the broken appearance which may be seen when you hold the enclosed stocking to the light, looking downward. (7976)

The broken appearance is what is known in the trade as sleaze or crepe stitches. The most common causes of this trouble are loose knitting and improperly conditioned silk. Frequently a change of a cone of silk will correct the trouble. However, we do not believe this will apply to the present case, as the crepy stitches are not confined to the silk, but extend through the cotton welt. The appearance of the fabric indicates that there is too much play in the sinkers. There is some indication also that the ware roller, take-up straps, and weights are not properly adjusted. A thorough regauging of the machine seems necessary.

In addition to the faulty knitting, the stocking does not appear to be well finished. While sleaze and crepe are caused primarily in the knitting, the dyeing and finishing can do much to modify or aggravate the defect. When the gums are removed too slowly or incompletely in the boil-off, distorted stitches are often produced. For this reason it is advisable to start the preliminary boil-off at a temperature of about 210° F., with sufficient degumming agent to soften the gums completely. A finishing compound should be used in the finishing bath to prevent undue friction when the stocking is being boarded, and to assist the boarder in putting a uniform tension on the whole leg, thus removing many of the distorted stitches. Another desirable characteristic of a good finish is one which will seal the stitches

QUESTIONS AND ANSWERS

and hold them in uniform alignment after the stocking has been properly boarded.

The dyer who is not producing satisfactory work will do well to experiment with some new products which have been developed for minimizing this crepy appearance. On the other hand, too much cannot be expected of the dyer. The dyer cannot take a poorly knit stocking and make it look right. The problem of eliminating crepe calls for a cooperative program, which must begin with the soaking of the silk and follow through each successive operation.

▼

Cloudiness in Carbonized Fabric

Technical Editor:

We are enclosing a sample of a carbonized and dyed fabric, which is cloudy and has longitudinal streaks. We shall appreciate any information you can give us which will aid us in overcoming this difficulty.

The goods were run through a modern continuous carbonizing machine and over a vacuum extractor; dried at 140° F.; baked at 240° F.; treated, after crushing, with cold water containing four pails of glauber salt. This solution was brought to a boil for 20 min., the goods were washed and treated with 4% of ammonia, which was brought to a boil and maintained at that temperature for 20 min. The goods were then washed for ½ hr.; tested for acid, and dyed with acid dyes with the addition of formic acid. We have also used sulphuric acid in place of formic acid and have made various other modifications of the process, but without better results. (8009)

There are several methods of processing these goods which you can try and which may serve to correct this trouble. The first method which we suggest is as follows:

Carbonize in the usual manner through the acid; extract; dry at 180° F.; and bake at 210° F.; run in the washer for 20 min. in warm water at not more than 110° F.; drain off this rinse water; shut the gates of the machine; add sufficient soda ash solution at 6° Tw. to enable running of the goods; then add 4 qt. of ammonia to the set; run for 25 min.; wash well; and test for acid.

It is very possible that since the goods are to be acid-dyed, it will be unnecessary to neutralize. One of the larger woolgoods finishers uses the following method: Carbonize with sulphuric acid at 4½° Be.; dry at 140° F.; bake at 210° F.; enter into the dye kettle without neutralizing; run for 30 to 40 min. in warm water; run off this bath; and make up dyeing solution with fresh water.

Some finishers are carbonizing this character of work after dyeing. This is not entirely satisfactory on light shades, as the charred burrs leave a black powder which is difficult to get rid of, even by crushing. This is not true, however, in the case of

dark shades. Goods which are carbonized after dyeing are washed thoroughly with cold water, no alkali being used for neutralizing.

Examination of your sample indicates that the trouble is due either to uneven neutralizing or to dirty acid tanks. The acid tanks should be cleaned at least once every two weeks. Recently there has been developed in Europe a class of dyestuffs containing chromium, which are being used with good results on carbonized fabrics. Application of these dyestuffs is relatively simple, and it might be well for you to experiment with them.

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Construction of Osnaburgs

Technical Editor:

Will you kindly inform me as to the organization of the following constructions of osnaburgs: 40-in., 7-oz.; 40-in., 4½-oz.; 36-in., 7-oz. I understand these fabrics are made from waste yarns. (7939)

The organizations requested are as follows:

40-in., 40 x 30, 7-oz.—about 2.30 yd. per lb.—warp, 9/1; filling 8/1.

40-in., 32 x 28, 4.57-oz.—about 3.50 yd. per lb.—warp, 12/1; filling 9½/1.

36-in., 40 x 30, 7-oz.—about 2.30 yd. per lb.—warp, 8/1; filling 7½/1.

The raw stock used in the making of osnaburgs is about 55 to 60% low-grade cotton and from 45 to 40% card strips.

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Green Discoloration on Hosiery

Technical Editor:

Recently we have had returned to us a number of hose, on which a green discoloration appears after from one to ten washings. Since these faulty goods have been sent back to us, we have carried out dozens of washing tests on hosiery from present stocks and stocks which have been in the warehouse for some months. In none of these tests did this green coloration show up. We made inquiries, wherever possible, as to the methods by which the hosiery were washed and dried. We found that various soaps were used in washing, and that in a number of cases the stockings had been dried in front of coal, coke, or gas fires.

The dyestuffs which we are using are as follows: Silk—Milling Scarlet GS; Navy Blue GNS, and Sulphon Yellow 5G; Cotton—Trisulfon Brown B, Chloramine Yellow 4GL, and Chlorazol Black BKS. (7954)

The reactions of the dyed color, as well as your own observations, point to the fact that certain elements of your color combination are affected by sulphur dioxide. You may check your dyeings by a treatment with a solution of sodium bisulphite; and when you have a combination that is not spotted by this solution, you can send out the hosiery with all assurance that the trouble will not occur. We believe that the navy blue and black are the colors most affected, and are quite sure that the dealer from whom you obtain your dyes will be able to supply substitutes which will not be sensitive when subjected to the test.

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Half-Hose Welts Uneven

Technical Editor:

With reference to your article "Half-Hose Welts Uneven" on page 99 of Feb. 28 issue, I should like to offer my experiences in this matter.

In numerous cases during many years of manufacturing, I have had uneven welts brought to my attention with the statement that the trouble has been due to faulty knitting, but I have usually been able to show that the blame has belonged elsewhere. We have always had a rule that rib tops should be finished 5 in. We knit them 7 in. from slack course to welt, and have always found them to be 5 in. when finished if properly boarded. When the welt has been stretched to the full extent, it will not, especially when damp, return to the original shape, sufficiently for boarding. I find that boarders are inclined to take the tops with both hands when stripping them over the boards, thereby stretching the top and the welt to the fullest extent. This practice gives the top the fan shape at the welt, making the rib top short and wide and destroying its symmetrical shape. If the rib top is slipped over the toe of the form, eased down over the heel (the widest part of the form), and not stretched any more than necessary, it will be properly shaped. In most every instance the cause of uneven welts will be found in the boarding room.

G. W. SHEELEY.

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Care of Latch Needles

Technical Editor:

Kindly advise me on the care of latch needles running on Wildman 8- to 11-cut machines making from 10- to 18-lb. men's underwear. I am particularly interested in the expected life of the needles. (7979)

Latch needles of the better grades very seldom require complete replacement on the grade of goods mentioned. As there is very little attrition from cotton yarns, the hooks and latches last indefinitely. With proper light lubrication of the butts, the effect of cutting or wear on the sides of the butts because of the movement of the needles in their slots is minimized, and knitters have had needles in use having a known life of over eight months.

Needle breakage from improper adjustment of machines and from strain in the

use of material not well adapted to the gage of the needles and the needles per inch, as well as negligence in the care of cams, account for the mortality of needles to a greater extent than actual wearing out.

We are familiar with cases where, in the use of some worsteds, it has proved necessary to replace dial needles entirely after about three weeks' use, because the yarn actually cut a notch in the latches as the cylinder needles drew the yarn across them in drawing the stitch, while on the same work, the cylinder needles have lasted two or three times as long. Needles improperly hardened will wear more easily, and the best grade of needles obtainable is least expensive in the end.

On the machines you are using, with suitable yarn, cleanly wound, the cams smooth and the machines, as stated before, properly and lightly lubricated, the spontaneous breakage of needles during operation ought not to exceed an average of ten needles per week for the first one or two months. The most prolific causes of needle breakage are loadings after a press-off, or during the picking-on of a press-off, and slugs or bunches in poorly wound or improperly cleaned yarn.

See that the stop-motions operate effectively, that the machines are kept clean and in tune by care and proper lubrication, and that the yarn is clean and of a size to make the weight fabric required without undue strain. Then 1,000 needles per machine should last six months.

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Oil Stain on Knitted Garment

Technical Editor:

We are enclosing a knitted garment on which you will notice a dark smooch. This stain is not apparent when the goods are boxed, but develops after they have been in stock for some time. (7944)

Examination of the garment indicates that the spot is due to the presence of oil. The stain is readily removed by treatment with any one of a variety of cleaners. It is our opinion, therefore, that the fabric was stained after the knitting operation. It will be noted that the oil is on top of the rib and the valley is clean. When fabrics are calendered and steamed, it is possible for a drop of oil from the steam to get on the fabric. Likewise, when fabrics are bleached, similar stains often result from the goods coming in contact with some metallic substance in either the bleach vat or the extractor. This staining can be avoided by putting the cloth in bags or by lining the extractor with clean cloth. In this case, however, due to the fact that the spot is easily removed, it does not seem probable that the stain is a bleach or extractor stain.

Everything considered, the most logical place to look is around the sewing machines. If there is too much oil on the machine parts, and the fabric comes in contact with it, the cloth will quickly absorb the oil. As the oil here is clean, it will not show; but when the garment is placed in a box and allowed to stand, the oil oxidizes, and the stain turns dark in color. This is particularly true of bleached fabrics.

Yarns for Athletic Hosiery

Technical Editor:

Will you kindly suggest some yarns for athletic hosiery? We have a 5-in. cylinder-and-dial ribber with 48 needles in cylinder and 48 in dial. Have been using 2/14 or 7s worsted, two ends outside and one end inside, and the stockings have not been standing up satisfactorily. Have been knitting all worsted but have been considering using some cotton. Could we continue to use our worsted on the outside and cotton inside, or would it be more satisfactory to use a mixed yarn of a larger size? What size would you recommend? (7990)

Assuming that the combination of yarns in use at present provides the required weight of product, we suggest that a thread of 5s cotton be plated with the two threads of 2/14 or 7s worsted. As the machine described is a ribber, and as it is assumed that the resultant fabric is made in a 1x1 ribbed stitch, the plating may be done by feeding the yarns through two separate holes in the yarn carrier. One hole, the regular one, will be located about the middle of the carrier; and another hole in the lower corner, at the tail of the carrier. The worsted will feed through one hole and the cotton through the other, and test will show which hole is better for either yarn. This method will show a worsted face on both sides of the fabric, with the cotton hidden completely. The resultant fabric would be about 32% cotton and would be much superior in appearance to a fabric of mixed yarns. Should a heavier weight be desired, a thread of 4s cotton or two threads of 8s may be used.

▼

Streaks in Brassiere Cloth

Technical Editor:

We are enclosing a sample of brassiere cloth which shows streaks running warpwise. We examined the warp from which this cloth was woven, but found no streaks. We also examined the reed, and found that the dents are uniformly spaced and are not in a weakened condition. (7935)

Samples taken from both the light and dark streaks gave 23 twists per inch in the ply. There seems to be no variation in the yarns to explain the trouble in the cloth.

It is probable that this trouble is the result of faulty reeds. In order to be certain that the reed is perfect, it is necessary to examine it as the lay is beating up the picks. Turn the loom over by hand until the reed is carried up against the fabric, and then examine the reed closely while it is subjected to the tension of the warp. With this class of goods, having a high sley and woven with considerable warp tension, it is quite possible that a reed which looks perfect when away from the cloth will show spots of weakness when drawn up against the tension of the warp threads.

One factor which leads particularly to the conclusion that the reeds are at fault is the fact that a heavy streak in the fabric always seems to have a light streak next to it. We note that you believe the reeds are uniformly spaced, but wonder if you examined them as suggested above. Reeds may appear to be perfect and yet change spacing when actually working. Our final suggestion is that a new reed be tried on a loom where it is known that this trouble occurs.

▼

Box Stitch in Hose

Technical Editor:

I am inclosing a five-thread, fifteen-turn 42-gage stocking. You will notice that in this fabric we have what we term a "box stitch." This is something new that has arisen on these machines, and we should like to have your opinion as to the cause of it. (7931)

Your so-called "box stitch" shows purely a condition of what is commonly referred to as strawberry stitch. This condition is brought about by improper stitch construction or actuation of important parts related to the stitch construction, such as sinkers, needles, and knocking-over bits; and the condition can be produced by knitting either too loose or too tight. In this instance we think the stitch construction too tight.

An examination of the pattern shows the faulty stitch construction predominating in the center of the pattern, with each side practically clear of the trouble. This we think has been caused by improper alignment of needles. The knitter has of necessity to keep his needles in good shape on either side of the needle bar where needles are brought into play with narrowing points in the narrowing operation; otherwise he would have much trouble in the narrowing operation. The needles in the center of the head have evidently not received such careful attention as those on either side. In this way the sinker loops are not so perfectly formed in the center of the head as they are on either side, where needles are in better condition.

To correct the trouble, we should first see that needles are carefully aligned and the needle bar and sinker head properly gaged. Then it will be necessary to give the knocking-over bits a little more lift or the needles a little more draw so as to form well-developed loops in the cast-off.

Textile Calendar

Southern New England Textile Club, annual meeting, Pomham Club, Riverside, R. I., June 17, 1933.

American Society for Testing Materials, annual meeting, Stevens Hotel, Chicago, June 26 to 30, 1933.

Southern Conference on Human Relations, 14th Annual Meeting, Blue Ridge, N. C., July 13-16, 1933.

American Association of Textile Chemists & Colorists, Annual Convention, Chicago, Sept. 8 and 9, 1933.

Carolina Yarn Association, Annual Golf Tournament and Outing, Roaring Gap, N. C., Sept. 16 and 17, 1933.

Fourteenth Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4 to 9, 1933.

Southern Textile Exposition, Eleventh Annual Exhibit, Textile Hall, Greenville, S. C., Oct. 15 to 20, 1934.

Simplicity supplants clutter. Left, 1893 living-room. Right, same in 1933—Courtesy Connable

Swimsuits of the past—Ocean Bathing-Suit Co.

1893-1933

CHICAGO FAIR FOCUSES ATTENTION ON 40 YEARS OF TEXTILE PROGRESS

As we swim this summer—Ocean Bathing-Suit Co.

THE Century of Progress Fair which has just opened in Chicago, performs a double service for the textile industry: It records the achievements of 1933, even as it invites a comparison of modern textiles with textiles as they were in 1893, at the time of the Columbian Exposition in Chicago. Forty years of fashions! It is like going back to the Middle-Ages to review certain of the apparel and other textile trends that were dominant when the first Chicago Fair opened. To the industry, however, the contrast of 1893 versus 1933 offers an excellent basis of measuring progress. And it is not entirely a matter of amused chuckles, either. True enough, we can laugh at the amazing bathing-suits that were worn by the decorous dames of 1893; we can grin over those barber-pole striped stockings so fashionable in the bicycle era; or the skyscraper chokers for men which a few Beau Brummels had just introduced; or the ultra-ornate opera coats that women were wearing; or any of the thousand-and-one fashion oddities of '93 that seem so bizarre to the sophisticates of '33.

But—not so fast! In certain respects the wheel of style progress seems to have made almost a complete circle. Take 1933 fabrics, for example. A number of them, particularly the rough-surface cottons, bear striking resemblance to the cottons that were best-sellers in 1893. One manufacturer, while gathering samples for us to use in the accompanying illustrations, allowed his 1893 matelasse cottons to get mixed with those of 1933. For a few minutes he was stumped, because he couldn't tell which was which!

As regards style in apparel and interior decoration, the moderns have the best of it, by far. Lavishness, a yearning to get sumptuous effects by combining every conceivable sort of trimming on one garment, was the dress-wear keynote of 1893. And the cluttered aspect of the average Victorian living-room is still a dread memory. Those of us who go to the 1933 Fair will see the difference—no less in the simpler styles of the visitors themselves than in the ultra-modernistic home interiors which are on display. They will see the textiles of today and tomorrow—and textiles' newest competitors. In two all-steel houses at the Fair there are draperies made of everything from cellophane to sheet copper.

The Chicago Exposition allows the textile industry to look at itself in a mirror—as well as to display its wares to the world at large. And this self-examination is par-

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Fur-trimmed and tasselled opera coat of the Patti era—Brooklyn Museum

Brocaded satin and velvet evening dress; Worth, 1893—Brooklyn Museum

Velvet afternoon dress with bead embroidery; Worth, 1891—Brooklyn Museum

Dotted velvet street dress of the early nineties; Worth—Brooklyn Museum

Cotton lace - trimmed night-gown of 50 years ago—Cotton-Textile Institute

Upholstery velours, early '90s—Johnson & Faulkner

Grande brocade drapery, 1893—Johnson & Faulkner

1890 woven gingham; floral overprint—Butterfield

Satin warp print, 1893—Robert Schey Collection

Wool Dress fabric of '90s—Robert Schey Collection

ticularly enlightening when it spans the two generations that have elapsed since the Columbian Fair. Dipping into statistics, we find some interesting figures. When visitors to the 1893 Exposition viewed the textile exhibits in the Machinery Building, they saw the newest products of an industry which employed about 400,000 workers and had an annual output of approximately $800,000,000. It is a greatly enlarged and advanced textile industry which now displays its achievements in the Textile Pavilion of the General Exhibits Group at the 1933 Fair. The total of workers has increased to nearly 1,100,000, while the annual output approximates $3,000,000,000.

Continuing the comparison further, some surprises come to light, reflecting the influence of the depression. For example, cotton last year was lower than 1893 levels and it is now slightly higher. During the period of the first Chicago Fair, middling upland spot cotton averaged 8½c. and fine grade washed Ohio fleece wool was bringing 24c. Wool had again descended to this level early in the current year but has since moved higher.

Now, however, with the trend so decisively upward, textile factors visit the Chicago Fair in cheerful mood. And an aggregation of enlightening displays awaits them at the Textile Pavilion there. They will see various new textile equipment in operation. Machines that automatically select colored yarns and knit them into hosiery are shown. Latest developments in the Sanforizing

Matelasse of 1892; Note resemblance to 1933 fabric—Fred Butterfield

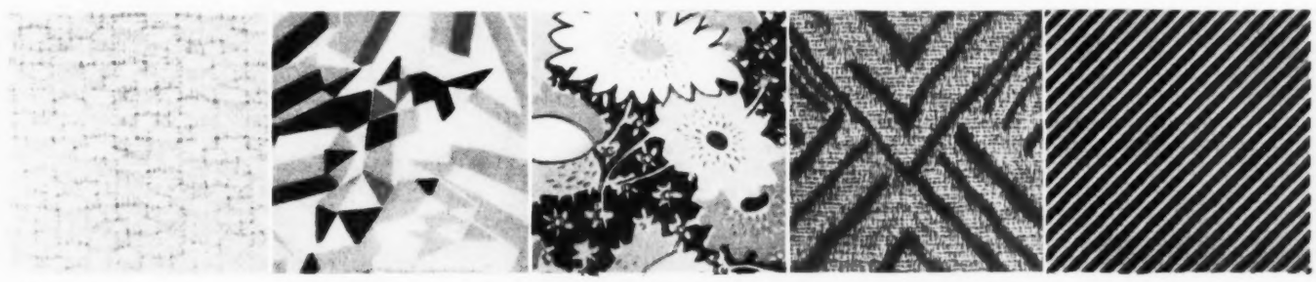
Strictly modern effect in night-gown of milanese chiffon—Tubize Chatillon

Street ensemble of today; Cheney floral print — Trend Magazine

Typical 1933 style for formal afternoon; Mallinson fabric; dress by Shapco

Afternoon dress "Century of Progress" print—Marshall Field Wholesale

Fall, 1933, evening gown of gray satin; wrap of velvet—Velvet Guild



Women's fancy weave coating — Botany Worsted

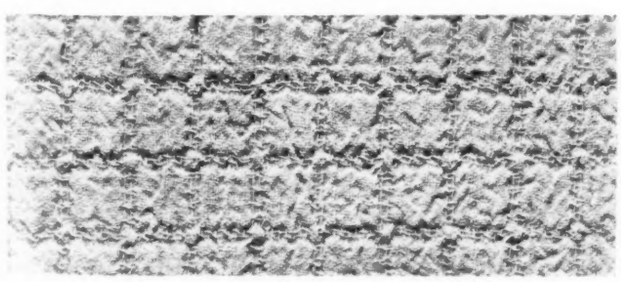
Ultra-modern printed sheer silk—L. & E. Stirn

Modern type cotton with printed floral design

1933 drapery, reflecting newest trend—F. Schumacher

Raised-stripe upholstery fabric, 1933—F. Schumacher

process of pre-shrinking fabrics are demonstrated. Shirts are seen in process of manufacture. And the displays of finished merchandise include historical showings of textiles through the ages. Formidable corsets which fashion condemned women to wear in the '90s, are contrasted to the dainty foundation garments of today. The corset display, arranged by Rose Hanskat, of the Stayform Co., promises to interest textile visitors. "Corset fashions were at their worst in 1893," writes Miss Hanskat, "as that was the period of wasp waists, frail women and early death." Miss Hanskat's display includes an iron corset, as worn 200 years ago.



A 1933 cotton matelasse exploiting waffle design—Fred Butterfield

Fabrics of 1933 have an important place in the textile displays, and an especially interesting showing of transparent velvets has been arranged by Sidney Blumenthal Co.; this includes the new "Crystelle" velvet that was worn by Mrs. Franklin D. Roosevelt at the Inaugural Ball. Then, too, we must not omit the remarkable "Century of Progress" print series designed by Walter Dorwin Teague, textile artist. Mr. Teague used the Fair buildings as the theme for twelve patterns, which are offered by Marshall Field & Co. One of these, "Science Towers," is shown made up into a dress among the accompanying illustrations; likely as not, these Fair prints will be seen on some of the smartly dressed women visitors at the Fair.

Nor is textile interest restricted to its own Pavilion.

Bicycle, silk, and mesh hosiery at the 1893—Holyoke Silk Hosiery Co.

Above, 1933 collar. Below, collar, cuff, 1893—Cluett Peabody

Hosiery, 40 years later; typical modern styles—Holyoke Silk Hosiery Co.

Among 53 buildings that comprise the 1933 Exposition, visitors will find many displays that offer new thoughts on textile development. One of the features of the Westinghouse exhibit in the Hall of Electricity, is a decorative display designed by the Standard Textile Products Co., which changes its entire appearance when ordinary light is replaced by ultra violet "black light." However, no single feature can exceed in significance the broad impression that the display gives of textile progress as compared with years ago. The industry has gone far in this period. At the time of the Columbian Exposition, Government reports tell us, the textile industry was selling its products to a nation of 66,970,496 persons; 40 years' growth has doubled that figure. It is interesting to note that the industry's equipment has increased in almost exactly the same proportion. The total of cotton spindles in the U. S. in 1893 was about 15,550,000; today it is 31,031,648. Somewhat less than double is the gain in looms, all divisions: The 435,000 looms of 1893 have risen to 780,000.

This parallel of 100% increase can be carried even further. The Columbian Exposition was attended by 27,539,041 persons. While any definite estimate of attendance at the Century of Progress Fair is necessarily speculative, those in authority expect the attendance to total 50,000,000.

So it goes. Behind the America which will visit Chicago this summer hovers the ghost of an America of a very different age—an America of women's fashions which would gladden the heart of the piece goods seller. Dresses were expansive affairs in 1893, lots of yardage and abundant trimmings. Formal evening coats were begemmed, beribboned, befurred—bedecked indeed with everything but the kitchen stove.

Today the textile industry's buying public has doubled its size, but simplified its taste. Leg o' muttons, to be sure, have revived for a spell; but, barring such derelictions, the trend of fashion is decidedly toward more dignified, more classical lines. The day of profuse effects, either in dress or in household decoration, has gone the way of the horse and carriage.

And maybe the generation that whistled "Bicycle Built for Two," while viewing the textile wonders of the 1893 Fair, will be hiding behind the scenes at Chicago this summer, listening to descriptions of such 1933 marvels as sun-back swimsuits, "scanties," and non-run hosiery.

Textile World, 1933, with two predecessors (1893 issues)

Machinery (textiles) Building at the 1893 Fair

General Exhibits (textile) Division at 1933 Fair

ADVERTISING PAGES REMOVED

THE PERSONAL PAGE

P. **S. Wilcox** has been elected president of Tennessee Eastman Corp., Kingsport, Tenn. He was formerly vice-president and general manager. J. C. **White,** general superintendent, has been named treasurer and general manager. **H. G. Stone** has been made general superintendent. **W. G. Stuber** successor to George Eastman as head of Eastman Kodak Co., is chairman of the board.

George Bliss McCallum has been elected president and chairman of the board of the Propper-McCallum Hosiery Co., New York. **Samuel S. Kahn** was reelected vice-president and treasurer and **Revell McCallum** was elected secretary succeeding **Bernard Kahn,** resigned.

Thomas B. Hill has resigned as president of C. K. Eagle & Co. to become president of the Greyco Sales Co.

Phillip A. Vogelman, vice-president and general manager of the Onondaga Silk Co., Syracuse, N. Y., has been elected president, succeeding **B. C. Milner, Jr.,** who becomes chairman of the board.

Donald Comer, president of the Avondale Mills, Birmingham, Ala., has been elected to membership in the New York Cotton Exchange.

W. C. Bobo, president and treasurer of the Bobo Weaving Mills, Spartanburg, S. C., has also become associated with the Dilling Cotton Mills, King's Mountain, N. C.

Paul H. Allen, of Charlotte, N. C., is now president of the Spencer Corp., Spindale, N. C.

Paul C. Baker has joined Vanity Fair Silk Mills, Reading, Pa., as general sales manager. He was recently with Montgomery, Ward & Co., and previously with Gotham Silk Hosiery Co.

Albert Roth, president of Colonial Fabrics, Inc., New York, a subsidiary of Kattermann & Mitchell Co., has resigned.

Joseph W. Hawthorne, for ten years connected with the Independence Trust Co., Charlotte, N. C., has resigned as cashier of that institution to become secretary and treasurer of Jewell Cotton Mills, Thomasville, N. C.

J. R. **Dover** has been elected president of Eton Mills, Shelby, N. C. He will continue as president of Dover Mills, also of Shelby. **A. B. Quinn** has been elected secretary of the Eton Mills.

E. **A. Hamrick** has been elected president of Phenix Mills Co., King's Mountain, N. C., succeeding **E. A. Smith,** deceased.

Brown Mahon, formerly vice-president and assistant treasurer of Judson Mills, Greenville, S. C., who has been connected with the American Enka Corp., for the last few months, has accepted the position of assistant manager of Dunean Mills, Greenville.

F. **A. Halter** has resigned as vice-president of National Weaving Co., Lowell, N. C., effective July 1, to return to Switzerland to take charge of properties there. He will be succeeded by C. G. **Aschman**, who will continue his interest in C. G. Aschman Co.

Frederick M. Feiker, who has been engaged by the Textile Foundation to conduct a survey of textile education situation with view to a recommendation for an educational program commensurate with the industry's needs. A preliminary survey made by Dr. Compton, president of M.I.T., Dr. Brooks, president of N. C. State College and Dean Doherty of Yale Engineering School, indicated the need for constructive suggestions for betterment. Existing facilities in the U. S. and Europe will be covered. Mr. Feiker has been director of the Bureau of Foreign & Domestic Commerce for the last two years, and although invited to continue in that capacity chose instead the place with Textile Foundation. He is an electrical engineer by early training but has devoted most of his career to editorial work serving at one time as editorial director of the McGraw-Hill Publishing Co. He organized the Census of Distribution in 1930 and assisted in establishing the government's work in simplified practice and in setting up the "Survey of Current Business."

R. W. Boys, formerly of the Farr Alpaca Co., Holyoke, Mass., has been appointed agent and general manager of Green River Mills, Inc., Tuxedo, N. C., and Pisgah Mills, Inc., Brevard, N. C., to succeed the late **George Fish.**

James T. Wardlaw, who has been assistant treasurer of Drayton Mills, Spartanburg, S. C., since leaving Lockwood Greene Engineers, Inc., has been elected treasurer of the mill to succeed **B. W. Montgomery,** who has retired because of ill health. **G. H. Milliken,** of New York, has been elected president, a position also held by Mr. Montgomery.

C. D. Dowdy has succeeded **W. P. Elliott** as superintendent of the Marion (N. C.) Knitting Mills, Inc., the latter having resigned to organize a new mill.

Robert Cole is now treasurer of the Hannah Pickett Mills, Rockingham, N. C., succeeding his father **Wm. B. Cole,** who retains the office of president.

W. E. Crenshaw, in addition to his position as superintendent of the Glenn Mfg. Co., Lincolnton, N. C., is now general superintendent of the group of mills headed by W. W. Glenn, including the Cherryville Mfg. Co., Howell Mfg. Co., and Wildan Mfg. Co., Cherryville, N. C., and the Laboratory Cotton Mills and the Lincoln Cotton Mills, Lincolnton.

J. D. Green, for several years with Callaway Mills, Inc., LaGrange, Ga., is now superintendent of the Howell Mfg. Co., Cherryville, N. C.

J. O. Williams, who accepted the position of superintendent of Gastonia (N. C). Thread Mills, Inc., May 1, has assumed similar responsibilities with the American Cotton Mills, Bessemer City,

H. L. Boss, purchasing agent for the Tubize Chatillon Corp., Rome, Ga., has been appointed purchasing agent for the same organization at Hopewell, Va., succeeding **R. C. Jones,** who becomes manager of the Rome plant.

James W. Clark, superintendent of the Pioneer Mills, Guthrie, Okla., for several years, has been elected assistant treasurer, succeeding **Dudleigh C. Collins.**

Fred Tattersall has been appointed superintendent of printing division of American Printing Co., Fall River. Mr. Tattersall was formerly with S. Slater & Sons, Inc., Webster, Mass., and with Apponaug (R. I.) Co.

Russell Robinson, formerly with the Celanese Corp. of America, Cumberland Md., is now overseer of slashing at Manville Jenckes Co., Manville, R. I. Mr. Robinson graduated from Lowell Textile Institute, class of 1921.

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Obituaries

Nathan Hatch, aged 73, president of Fuld & Hatch Knitting Co., Cohoes, N. Y., died June 4. He was one of the organizers of that company in 1892 and for many years a leader in his industry.

George Fish, aged 65, general manager of Pisgah Mills, Inc., Brevard, N. C., and Green River Mills, Inc., Tuxedo, N. C., died in Hendersonville, N. C., May 15.

Frank W. Hallowell, partner since 1895 of Hallowell, Jones & Donald, wool dealers, Boston, died June 1.

Joseph Ferree Talbot, aged 67, died at his home in Lowell, Mass., on May 13. He was secretary of the Talbot Mills, North Billerica, Mass.

George A. Perry, aged 57, for the past three years superintendent of the wilton and velvet rug department of the Olson Rug Co., Chicago, died at his home in Elmwood Park on May 16.

Charles Wells Hubbard, aged 77, former treasurer of the Ludlow Mfg. Associates, died in Weston, Mass.

Arthur Ingraham, aged 59, superintendent of the Oakland (R. I.) Worsted Co., and of the Mohegan Worsted Co., Nasonville, R. I., died on May 10.

Edwin C. Worcester, retired, previously with Passaic (N. J.) Print Works and Garner Print Works, died at Bennetsville, S. C., May 26, aged 53.

Granville K. Cutler, retired, who previously had served many years as purchasing agent of American Woolen Co., died recently in Andover, Mass.

NEW PUBLICATIONS

ACTIVITIES OF MELLON INSTITUTE DURING 1932-33; Mellon Institute of Industrial Research, Pittsburgh, Pa.

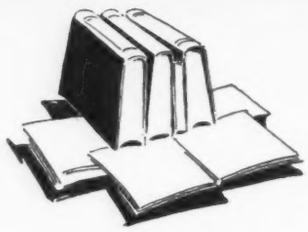
This abstract of the 20th annual report of E. R. Weidlein, director of the Institute, outlines the results of recent researches, lists the industrial fellowships in operation during the last fiscal year, and comments on other activities of the Mellon Institute.

AMERICAN STANDARDS YEAR BOOK 1932-1933; American Standards Association, New York.

This book discusses the benefits of standardization, explains how American standards are developed, and provides indexes to approved American standards and to uncompleted projects. Entries of interest to the textile industry include: Textile Safety Code; Cotton Rubber-Lined Fire Hose for Public and Private Fire Department Use; Sheets and Sheetings; General Methods of Testing Woven Textile Fabrics; and Specifications for Blankets.

INDUSTRIAL EDUCATION IN SOUTH CAROLINA. Published by industrial teachers in cooperation with the State Board For Vocational Education, Columbia, S. C.; 170 pages.

This book contains a review of vocational education in South Carolina, its relationship to the Smith-Hughes Vocational Act,



and a summary of the types of industrial classes maintained. The major portion of the book is devoted to pictures showing vocational classes in textile mills.

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Business Literature

Air Conditioning. Parks-Cramer Co., Fitchburg, Mass. Pamphlet describing the design and operation automatically controlled equipment for changing air in mill buildings.

Motors. General Electric Co., Schenectady, N. Y. Bulletins showing squirrel-cage and wound-rotor, ½ to 50 hp., quiet induction motors and sound-isolating motor bases designed for floor mounting.

Preparatory Machinery. Davis and Furber Machine Co., North Andover, Mass. Booklet describing various types of pickers and shredders and other preparatory machines for woolen and worsted mills.

Tachometers. Amthor Testing Instrument Co., Brooklyn, N. Y. Circular on automatic fixed reading hand tachometers for measurement of revolving equipment.

Beryllium Copper. The Riverside Metal Co., Riverside, N. J. Booklet giving data on the composition properties, hardness, electrical conductivity, density, and other characteristics of beryllium copper.

Finishing Machinery. Riggs & Lombard, Lowell, Mass. General catalog of wet finishing machinery, including continuous cloth washers, dye kettles, fulling mills, bleaching ranges, kiers, extractors, and sample dye kettles.

Water Mixer. Fulton Sylphon Co., Knoxville, Tenn. Bulletin describing the design and application of No. 903 sylphon water mixer which is suitable for controlling the temperature of water to shower baths, swimming pools and various industrial processes requiring warm water of uniform temperature.

Automatic Controls. The Foxboro Co., Foxboro, Mass. Showing construction and operation of "Rotax," an electrically operated controller with rotating contacts for temperature, pressure, humidity, liquid level and flow.

Glass Coating. Skybryte Co., Cleveland, O. Circular on "Skyco No Glare", a liquid glass coating designed to reduce heat and glare when applied to windows.

Conveyor Chains. Chain Belt Co., Milwaukee, Wis. Pamphlet showing "Rex" chains for drives and conveyor installations, and specially designed conveying equipment.

Compressors. Sullivan Machinery Co., Chicago, Ill. Bulletins describing single-stage, Angle-type compressors for gas and air and eight-inch Angle compressors for standard operating pressures.

Dyestuffs. General Dyestuff Corp., New York. Three color cards—one illustrating compound shades produced with Indanthren dyestuffs, another showing dyeings on carpet yarns, and the third illustrating white discharges on pad dyeings with Rapidogen dyestuffs.

BUSINESS NEWS

Robert & Co., Atlanta, Ga., has appointed Cherry L. Emerson, formerly vice-president and chief engineer, as president of the company. He succeeds L. W. Robert, Jr., who resigned when appointed Assistant Secretary of the Treasury of the U. S. by President Roosevelt. Jesse M. Shelton, formerly vice-president, is now vice-president and treasurer. Capt. L. W. Robert, Sr., continues to act as secretary. Except for these changes the organization remains as in the past; the engineering department heads have been in their present positions for 10 years or more.

Parks-Cramer Co., Fitchburg, Mass., maker of conditioning and humidifying equipment for the textile industry, is entering upon the promotion of its equipment for use in other industrial applications and for improved comfort in public and private buildings. The first advertisement in its campaign appeared in recent issues of *Time* and *Factory and Maintenance Engineering*. The copy points out that bakers could make better bread working in the temperature and humidity of a modern cotton mill weaveroom than in a bakery without conditioned air because weave room conditions are ideal for dough fermentation.

National Adhesives Corp., New York, has erected a building at Dunellen, N. J., exclusively for manufacture of transparent cellulose glues, gums and cements. A recent development which this company believes opens up a new field for textile mills and converters is a series of gums and cements for sticking moisture-proof tissues to fabrics.

E. H. Jacobs Mfg. Co., Danielson, Conn., has created a research department and secured E. S. Kant, formerly with Goodyear at Akron, for its manager. B. T. Clark has been placed in charge of production at the Jacobs plant and a night shift put on to care for increased business.

Dr. E. A. Rykenboer has been appointed general manager of the R. & H. Chemicals Department of E. I. du Pont de Nemours & Co. to succeed C. K. Davis, who was recently elected president and general manager of the Remington Arms Co., Inc. Milton Kutz has been appointed assistant general manager of the department.

J. B. Ford Co., Wyandotte, Mich., has appointed L. D. Dodson to head the New York office of J. B. Ford Sales Co. Mr. Dodson has for several years been in the main office at Wyandotte. Mr. Cline, formerly New York manager, has been detailed to special work on national accounts.

William Toll, secretary-treasurer, Sipp-Eastwood Corp., Paterson, N. J., has been appointed to the Committee on Legislation of Silk Assn. of America.

Stewart-Warner Corp. has appointed Frank A. Hiter, sales manager of the Alemite Corp. as general sales manager of Stewart-Warner and all its subsidiaries.

J. Fred Welch, Charlotte, N. C., manufacturers' agent, has been appointed representative for Walton Trunk Co., Boston, Mass., fiber cans and boxes for textile mills; for Economy Lubricating Co., Charlestown, Mass., lubricating greases and boiler compounds; and for Lyman W. Smith Co., Canton, Me., roller leather.

J. W. Jenkins, recently resigned as general superintendent of Hannah Pickett Mills, Rockingham, N. C., is now operating as agent for the sale and purchase of textile mills and used machinery, with headquarters at 121 East Third St., Charlotte, N. C.

J. O. Edwards, for several years superintendent of Rhodhiss (N. C.) Mills Co., has been appointed sales representative for the Gates Rubber Co., with headquarters in Charlotte, N. C. He will continue to represent the Gossett Machine Co., Gastonia, N. C.

Bristol Co., Waterbury, Conn., maker of indicating, recording and controlling instruments, has moved its New York office to 220 East 42nd Street. C. W. Williamson, district manager, continues in charge, assisted by a staff of six engineers.

American Lumber & Treating Corp., Chicago, Ill., have provided additional wood treating facilities at strategic points in the Southeastern states to serve the increased demand for Wolman salts pressure-treated wood. Wilkins Cagle, 108 Crescent Ave., Greenville, S. C., supervises representatives in that territory.

Wilcox & Gibbs Sewing Machine Co., New York, is opening branch offices in Cincinnati, Detroit, Atlanta, and Los Angeles. The sales staff is being augmented and the company reports considerable increase in business in the last two months.

Textile World Analyst

PRODUCTION AND MARGINS SOAR IN EXCITING MARKET

DURING the last few years, almost any statistical comparison which showed a decreased loss was hailed as encouraging. A fractional increase was a sensation.

What a difference a few months makes! Today, in textiles, bases for optimism are available in chunks. Mill operations are sharply above those of last year; manufacturing margins have advanced, not by fractions of a cent, but by whole units at a time.

On the production side, the month of April showed a rate of textile mill activity approximately 30% above that of April last year; the activity for the first four months of this year was 7% above the corresponding period of 1932. Data for May are not available at this writing but it is probable that some sort of a record was set last month and that the total increase for the first five months over last year was boosted to a figure well above the 7% reached for the first four months.

Thus far, the improvement in mill operations has been fairly uniform among the different branches of the industry. It is particularly interesting to note that the wool industry, whose activity in 1932 was 25% below 1931, operated during the first four months of this year at a higher rate than during the same period last year. This turn has been long expected—and much needed.

Price movements have been more spectacular than the gyrations of the production curve. Parts of the performance have been almost unbelievable to this observer, accustomed to continually degenerating manufacturing margins.

Referring to Table I, it will be noted that the average margin in carded cotton fabrics during May was 15.6c., against 11.4c.—and that it is higher than any on record in this compilation, which extends back to July, 1931. More remarkable still, the margin during the last week of the month was 19.3c.

The advance in carded yarns (Table II) was not so abrupt, but was a substantial one nevertheless. The average margin during May was 12.3c. against 10.1c. in April.

A glance at the table of price index numbers at the bottom of this page will show that the improvement has applied throughout the industry. In cotton, the relationship, last month, between the raw material, yarns, and gray goods, was approximately that averaged in 1931. In wool, raw material and tops approximated that level but yarns and cloth are lagging. The raw silk index is climbing back slowly.

As always, the main question is the future. It is safe to say that the current rate of activity cannot continue indefinitely. Part of it has been due to anticipation of the effect of restrictive legislation. Fortunately, retail activity is picking up steadily. More important still, reports from practically every industry indicate an upward movement. The summary of conditions released by Secretary of Commerce Roper at the end of May authoritatively supports this statement. Increased consumer-purchases of textiles seem undoubtedly to be ahead.

However, as we stated before, there will come a time when production must be reduced. There will come dips in demand. The big question is: Will panicky fear again dominate the textile markets—or will the recession in demand be accepted as a perfectly normal development, which should not affect the profit margins, no matter what number of units is sold?

If the industry-regulation program works out in its most constructive way, manufacturers will be enabled to fight over-production, wage-chiseling and price-chiseling, which have made profits unobtainable in recent years. In that fight, however, there will be needed more than the defensive measures which legislation may provide; there will be needed individual resistance which has been sadly lacking in the past.

It is not an over-statement to say that the events of the next six months or year will largely determine whether or not textile manufacture is to regain its position as a profitable field of endeavor.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	15.3	January, 1933...	10.4
October, 1931...	13.3	February, 1933..	10.1
January, 1932...	12.1	March, 1933.....	10.2
June, 1932.....	9.5	April, 1933.....	11.4
July, 1932.....	9.1	May, 1933.....	15.6
August, 1932...	11.1	Week Ending	
September, 1932	13.0	May 10.....	13.5
October, 1932...	12.6	May 17.....	14.3
November, 1932	10.7	May 24.....	15.3
December, 1932.	10.6	May 31.....	19.3

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	12.6	January, 1933..	10.2
October, 1931...	12.7	February, 1933..	9.4
January, 1932...	10.9	March, 1933.....	9.8
June, 1932.....	9.9	April, 1933.....	10.1
July, 1932.....	9.6	May, 1933.....	12.3
August, 1932...	9.7	Week Ending	
September, 1932	12.8	May 10.....	11.7
October, 1932...	12.3	May 17.....	12.4
November, 1932	11.3	May 24.....	12.4
December, 1932.	10.9	May 31.....	12.7

▼ ▼ ▼

Textile World's Price Index Numbers

Date	Cotton Index Numbers				Wool Index Numbers				Silk Index
	Cotton	Yarns	Gray	Colored	Wool	Tops	Yarns	Cloth	Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1925.....	187	188	189	176	223	229	224	233	143
1926.....	140	155	157	149	184	189	179	207	136
1927.....	140	153	159	153	181	184	187	195	119
1928.....	160	162	162	166	199	202	199	197	110
1929.....	153	144	145	167	176	179	192	211	108
1930.....	108	125	123	144	127	139	161	202	179
1931.....	68	93	92	119	99	112	134	161	54
1932									
Jan.....	53	78	74	102	94	104	127	147	41
July.....	47	68	62	96	59	72	101	116	25
Oct.....	52	83	78	107	82	97	115	130	37
Dec.....	48	74	69	103	77	87	108	125	33
Jan. 1933.....	50	72	67	100	76	85	105	125	29
Feb. 1933.....	48	68	65	95	75	83	102	125	26
Mar. 1933.....	49	70	66	96	75	84	102	125	26
Apr. 1933.....	56	74	72	97	78	90	104	125	29
May 1933.....	69	93	94	101	104	113	116	169	34

TEXTILE WORLD'S

Cotton Digest

EVEN a 1933 Solomon could not develop a program for the cotton industry which would please every manufacturer in it.

Opinions differ on the optimum length of the work-week. Not all these opinions can be served. The best that can be done is the establishment of a schedule which will serve the best interests of the industry and its workers, and at the same time obtain acceptance in Washington.

Even more difficult is the question of a minimum wage. Here, the old bugaboo of sectional differences enters in.

With no disposition to minimize the gravity of the issues involved, we still maintain that they must be settled with the least possible antagonism if the industry is to go forward.

It should be remembered that both the North and the South are equally represented on the central committee and that the members of that committee are manufacturers of the highest standing. Their final recommendations will be based upon full consideration of the interests of all sections and all groups. It will be not only good sportsmanship, but wise policy, for all to accept those recommendations—at least, if the industry is sincere in its desire to regulate itself, rather than to be regulated by Government.—*Editor.*

Prices Advance As Sellers Become Reluctant

Feverish activity in the cotton goods market on every increase in raw cotton prices during May reminded the old heads of exciting days during the World War. With spot cotton advancing from 8.25c. the first of May to 9.35c. the last day of the month, and with wage increases definitely on the way and limitation of production assured, buyers were eager to place contracts as far ahead as possible. Mills, on the other hand, refused to accept business for delivery more than a few weeks ahead. There was a tendency to start up additional looms in such centers as Fall River and New Bedford. In Fall River, for instance, 6,000 looms were operating on print cloth constructions June 1, but several large mills were still idle. Prices advanced on 38½ in. 64x60s, 5.35 yd. print cloths from 4¼c. to 5½c. during the month, while 39 in. 80x80s, 4.00 yd. print cloths rose from 5¾c. to 7½c. Towels, sheeting, sheets and pillow cases, denims, percales, bedspreads and blankets, in which there was heavy buying, also were higher in price. Corduroys were no exception, though prices were not increased as rapidly, but most producers were sold ahead to Sept. 1.

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Cotton Consumption

Cotton consumption during April, amounting to 470,685 bales, was 28.4% greater than for the corresponding month in 1932 when only 366,481 bales were consumed. Stocks on hand in consuming establishments April 30 showed a slight gain over the figure reported for March 31, according to the monthly report of the Bureau of the Census. Spindle activity during April was 95.7% of single shift capacity, compared with 93.9% for March, 95% for February, and 70.5% for April, 1932.

Predictions were that the 1933 crop will exceed last year's yield, but the possibility that Secretary Wallace will adopt a policy of leasing land already planted in cotton, thus removing from the market a sizeable percentage of the current crop, was regarded quite seriously.

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Independent Tire Cord Producers Look Ahead

The effect that operating schedule limitations are likely to have on individual branches of the industry has caused much concern the last few weeks. In the tire cord and fabric group, for instance, with maximum productive capacity estimated at 1,400,000 spindles, of which 55% are owned or controlled by tire manufacturers, the independent producers are expecting substantial increase in their business. Tire manufacturers such as the Goodyear Tire & Rubber Co., U. S. Rubber Co., and B. F. Goodrich Co., with large tire cord mills in the South, have operated them 24 hours a day in times when their tire factories were running on normal schedules. If these tire cord mills are not permitted to operate more than 80 hours per week, naturally such concerns are going to be forced to purchase a larger proportion of their requirements from the independent mills.

Several of the larger independent tire cord and fabric producers have in the last few years, because the tire manufacturers bought and built mills of their own, changed their plants over to other products. They are going to be reluctant to return to the production of tire fabrics unless the profit margin is particularly attractive. Although it is estimated that 1,400,000 spindles are running, or could quickly be converted to run on tire cord and fabrics, it is likely that not more than 1,250,000 spindles have ever been running on this class of goods at any one time, even during the peak of automobile production. In 1929, according to the *Census of Manufactures: 1929*, tire cord fabrics production amounted to 225,253,874 lb., tire duck aggregated 19,450,616 lb., and tire fabrics, other than cord or duck, was 12,768,053 lb. In that year, allowing for waste, the rubber tire industry consumed about 580,000 bales of cotton.

Cotton spindles owned and controlled by tire manufacturers follow:

Goodyear Tire & Rubber Co., 260,256; Firestone Tire & Rubber Co., 201,264; U. S. Rubber Co., 112,596; Fisk Rubber Co., 115,276; B. F. Goodrich Rubber Co., 80,000; Dunlop Tire & Rubber Co., 33,172; Total Spindles, 801,980.

Leading independent tire cord producers and their spindleage follow:

Manville-Jenckes Co., Gastonia, N. C., 118,320; Bibb Mfg. Co., Macon and Columbus, Ga., 85,000*; West Boylston Mfg. Co. of Ala., Montgomery, Ala., 40,824; Connecticut Mills Co., Decatur, Ala., 37,800; Tire Fabric Corp., Salmon Falls, N. H., 33,556; Ranlo Mfg. Co., Gastonia and Ranlo, N. C., 32,372*; Thomaston (Ga.) Cotton Mills, 32,000; Cannon Mills Co., Kannapolis, N. C., 30,000*.

*Note—Mills not exclusively on tire cord or tire fabrics. Figure indicates the estimated number of spindles that may be operated on these products.

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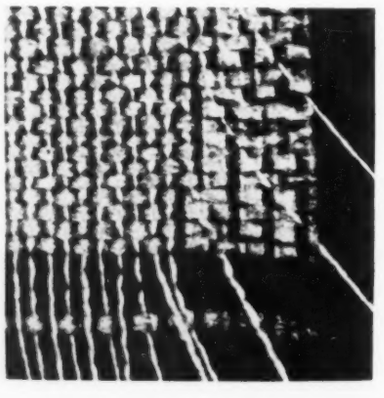
Twistless Yarn

Production of twistless cotton yarn which is now being manufactured on a commercial scale in Lancashire, England, was described briefly on page 97 of our April issue. In the accompanying illustration is shown a photomicrograph of a fabric in which this type of



yarn is employed for the filling. The original fabric, which was sent to us recently by one of our English correspondents possesses a good luster and soft handle, and is said to drape well. Other cotton materials in which twistless yarn is now being employed include casement cloth, dobbies, jacquards, and warp-pile fabrics.

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Production Control and Cotton Buying Discussed in Boston

Cotton buying, inflation and the control of production and waste were discussed by speakers at the Textile Forum meeting, held in Boston, May 25, under the auspices of the National Association of Cotton Manufacturers. Elliott S. Boardman, of the Federal Reserve Bank of Boston, discussed "Reflation or Inflation," while Eugene Szepesi, of New York, described a visual method of controlling waste and production without the use of records. Philip A. Moreland, of Pequot Mills, Salem, Mass., in his talk on how cotton is bought, declared that mills must shop around in order to be successful in their buying.

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National Cotton Week Hailed As Great Success

The success of National Cotton Week serves again to emphasize the excellent promotional work sponsored by the Cotton-Textile Institute. Stimulation of retail trade through special promotions of National Cotton Week, according to George A. Sloan, is credited with having provided the impetus to the recent pronounced upswing in cotton textiles.

•

Questionnaire Results on Cotton Consumption in Georgia

The coordination of cotton production with cotton consumption in the State of Georgia, with particular reference to grade and staple length, is the object of a study made by E. C. Westbrook, of the Extension Division of the University of Georgia. Results of a questionnaire in which 78 mills, representing 2,600,000 spindles, cooperated were presented at the annual meeting of The Cotton Manufacturers Association of Georgia, at Sea Island Beach, Ga., May 19.

It was found that 20% of the mills' needs was bought direct from farmers, 3% from cotton co-ops, 72% from cotton merchants, and 5% from other agencies. Only 40% of the requirements was obtained from local mill districts. Georgia farmers were found to be producing too much cotton of $\frac{7}{8}$-in. and shorter staple and not enough of 15/16-in. and longer staple. The study showed that 36.3% of the cotton consumed by Georgia mills is $\frac{7}{8}$-in. or shorter.

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Cotton Mill News

West Point Mfg. Co. will construct a new weave shed at its Lanett, Ala., plant at a cost of about $75,000.

Erwin Mfg. Co., West Huntsville, Ala., is enlarging the engine room so as to install another boiler.

Toulson Novelty Yarn Mills, Inc., Bridgeport, Conn., is a new corporation formed by Harry Toulson, William L. Belknap and Clifford L. Mason, to operate a yarn mill.

American Thread Co., Willimantic, Conn., reports a net profit of $65,257 for the nine months ending Dec. 31, 1932.

Flint River Cotton Mills, Albany, Ga., will erect 25 dwellings to house workers recently added to the payrolls.

Monroe (Ga.) Cotton Mills have taken bids for new one-story addition, 96 x 124 ft., and will soon begin superstructure. It is estimated to cost over $30,000, with equipment. Robert & Co., Atlanta, Ga., are the architects and engineers.

Primrose Tapestry Co., Rome, Ga., has increased the capacity of the plant by adding 12 looms.

Lane Cotton Mills, New Orleans, La., broke ground May 29, for a $25,000 addition to its plant, designed to increase output 5 to 10%.

Rountree Cotton Mills, Meridian, Miss., were sold recently to J. W. Sanders of Jackson and Meridian, Miss.

Central Falls (N. C.) Mfg. Co. has installed 200 new Draper automatic shuttle-changing looms, manufacturing all-rayon goods.

Eton Mill, East Shelby, N. C., is installing 104 new looms, it is reported.

Sterling Cotton Mills, Franklinton, N. C., in receivership since last November, were recently sold to a new concern, the **Sterling Cotton Mills, Inc.,** capital $60,000 with J. A. Moore, as president and A. H. Vann, as treasurer.

Neisler Mills, Inc., Kings Mountain, N. C., have awarded contract to Paul Mooney, Kings Mountain, for construction of a mill unit, the work having been started early in May.

Globe Mills, Inc., Mount Holly, N. C., which purchased the plant of the **Globe Yarn Mills** from the Whitin Machine works, recently began full time operations. W. L. Nicholson, formerly treasurer of Jewell Cotton Mills, Thomasville, N. C., is treasurer and general manager of the new company.

Manville Jenckes Co., Pawtucket, R. I., is being operated by the reorganization committee following court confirmation of the sale of all Rhode Island property of the company to the committee for $1,500,000.

David Dewares of Dewares & Co., Providence, dealers in cotton, woolen and silk yarns, has purchased Fisk Rubber Co. properties in Pawtucket.

Gluck Mills, Anderson, S. C., stockholders on May 27, authorized the directors to sell the properties to **Wellington Mills, Inc.,** recently chartered in Delaware, if an acceptable offer is received. Unofficially it was said that **Brookside Mills,** Knoxville, Tenn., might also be acquired.

Calhoun Mills, Calhoun Falls, S. C., are reported to have plans underway for the installation of additional machinery.

Aragon-Baldwin Cotton Mills, Inc., Chester, S. C., plant, has awarded contract to Potter & Shackleford, Inc., Greenville, S. C., for reroofing weave shed at a cost of $35,000. J. E. Sirrine & Co., Greenville, engineers.

Fort Mill (S. C.) Mfg. Co. has installed a Barber-Coleman automatic spooling unit in its mill No. 2.

Republic Cotton Mills, Great Falls, S. C., plant No. 3 are changing over 300 looms to run combed broadcloth, and 200 to run all-rayon taffetas and twills. A new Johnson rayon slasher and a high-speed Entwistle warper with a Sip rayon creel, have been installed.

Lancaster (S. C.) Cotton Mills are installing 20 single process pickers, a number of additional cards are being installed. In the spinning division 12,000 Saco-Lowell spindles are being added to the present equipment. A Bunch cleaning system is being installed in this department. Four Curtis & Marble shearing machines have been bought.

Pacific Mills, Lyman, S. C., have plans for a new one-story addition to power house, with installation of boilers, pumps and other equipment. It is estimated to cost about $100,000, with equipment. Lockwood Greene Engineers, Inc., Spartanburg, S. C., are engineers.

Marlboro Cotton Mills, No. 3, McColl, S. C., which was closed down for five years has started up.

Chesterfield Yarn Co., of Pageland, S. C., has leased the **Caswell Cotton Mill,** Kinston, N. C., and will begin operations at an early date.

Cannon Mfg. Co.'s plant at York, S. C. will replace 10,000 spindles with new equipment.

Bonham (Texas) Cotton Mills are installing a large number of looms, replacing old ones.

TEXTILE WORLD'S

Wool Digest

ALL branches of the wool industry owe a debt of gratitude to Franklin W. Hobbs, who recently retired as president of the National Association of Wool Manufacturers after eight years of service.

In recent years, his has been a thankless task. An industry discouraged by the dismal failure of the Wool Institute and not too free from lethargy, could not be expected to give the one remaining organization its whole-hearted support. Factional differences have further complicated the situation.

In the face of such circumstances, Mr. Hobbs has persisted and has kept alive the spark of cooperation, feeble though it has been at times.

His retirement was offered in the same spirit as were his services. Recognizing that the new national situation called for a full-time executive, he withdrew to permit such an accomplishment.

A new spirit pervades the wool industry today. Mr. Hobbs' tireless contribution to the development of that spirit has added another fine chapter to the history of textile cooperation.—*Editor.*

Wool Goods Move to Still Higher Levels

An almost unbelievable change has come over the market for woolens and worsteds. Prices have been advanced as many as four times since opening, with current levels up a total of around 40%. Many houses have no current price on lines, as business through August is on the books and until hours of operation, minimum wages, future wool values and tax levies are settled it is regarded as reckless to sell further.

It is a seller's market, with buyers not haggling for a moment at figures 40 to 87½c. above opening levels and in cases bidding prices up to gain acceptance of their orders. Goods seem likely to be still higher next fall. Of course the consumer's reaction is yet to be tested, but it seems that he has no choice but to fall in line. Reemployment and higher wages mean opening up of a wide replacement demand.

Women's wear lines, opened in May, had been advanced at least once before the end of the month. Buying was generous, particularly on staples with highly styled numbers being bought a little less freely. Some mills, however, have all the business they can handle for the next few months.

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Tops Begin to Reflect Full Wool Rise

Wool tops are showing further reflection of higher wool prices and better demand. The advance in spot tops from April 28 at 68c. to June 2 at 86½c. is 27%. This same commodity was at 58c. on Mar. 31 indicating a two-month rise of 48%. As an index of a similar gain in futures, December opened at 67.40 on April 28 and closed at 84.50 on June 2. Large top makers have been reluctant to make offerings and will take only small quantities of new business in special cases. Possibility of averaging down with cheap wools is fading out of the picture and new wools are high and scarce on the fine end.

•

Wools Make New Highs for Movement

The rise in raw wool prices during May was the sharpest in so short a period for years. The territory wool group advanced 28% and the fleece wool group 38%. The chief factor behind the movement was excited dealer buying of the approximate half of the 1933 clip not pledged by loans to the Farm Credit Administration. The advanced prices in the eastern seaboard markets are still below the level that will be necessary to market profitably the wools bought near the end of May.

Mill operations throughout the month were based on raw material costs well below the wool market. Manufacturers and topmakers averaged up their costs but how much longer they will be able to do this will be determined by the success of the distributing and retailing divisions of the wool industry.

The raw wool situation nevertheless continues inherently bullish, although it is difficult for manufacturers and dealers to obtain a clear line on the future owing to the unusual complexity of the situation. Mill buying during the month was chiefly in original bag wool and tended to taper off as the rise gained in momentum.

Reports from the London wool auctions late in May indicate American purchases of super 64s and 70s, the first American buying in that market for some time. Prices were strong.

•

Worsted Yarn Deliveries Falling Behind

As might be expected the worsted yarn market in May turned active and moved to higher levels. It was slow in taking its key from rising wool prices in April but has made up for lost time since then. Buyers have been interested in nearby months chiefly and put off operating to such a point that there is now considerable congestion and deliveries cannot be made as requested. Weavers have been more active generally than knitters and more anxious to cover ahead.

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Woolen Rags Active

Woolen rags have risen sharply in price stimulated by substantial mill demand. Higher raw wool has given new life and a new place to wool substitutes. Demand has been increased by speculative call from dealers. Mixed soft woolens had risen to 7c. in May. Market tone is vastly improved from the dull days of the year's first quarter.

•

Woolen and Worsted Overseers Hold Meeting

Over 300 members and guests attended the 50th semi-annual meeting of the National Association of Woolen & Worsted Overseers, at Rocky Point, R. I., May 20. As usual the gathering was featured by the celebration of "night before" at the Hotel Narragansett, Providence, and by the shore dinner at Rocky Point.

After the reading of committee reports at the business session, officers were nominated for election at the annual meeting, which will be held in Boston next November. In accordance with custom, there was no contest except for the office of third vice-president, all other officers being moved up. The slate to be voted upon next November stands: for president, Abraham L. Booth, Providence, R. I.; first vice-president, John J. Fanning, Baltic, Conn.; second vice-president, John C. Marley, Lawrence, Mass.; third vice-president, Fred Graichen of Providence, Herbert Fulton of Stanford, Me., and James H. Fitzroy of Providence; treasurer, Thomas Buchan, Quincy, Mass.; secretary, James J. Burns, Washington, R. I.

President John F. Campbell presided at the meeting. In view of the fact that the Boston meeting will mark the

50th anniversary of the organization, a special committee has been appointed to make arrangements.

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Wool Consumption

In clean equivalent, the consumption of wool (excluding carpet) was 10,523,000 lb. in April, as compared with 9,509,000 lb. in March and 7,248,000 lb. in April, 1932. The total for January to April, inclusive, was 46,949,000 lb. in 1933 and 43,831,000 lb. in 1932, according to the Department of Commerce. On the grease equivalent basis, which was in effect up to the first of the year, April consumption was 28,700,000 lb., including carpet, as compared with 19,954,000 lb. in April, 1932.

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Top Exchange Elects Officers

William S. Dowdell was reelected president of the Wool Associates of the New York Cotton Exchange at the annual meeting on June 5. Other officers are: Philip B. Weld, first vice-president; Joseph R. Walker, second vice-president; Kenneth G. Judson, treasurer.

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Rabbit Fur Crimped

In order that rabbit fur, when mixed with wool, cotton, or silk, will not be subject to shedding, but will spin in securely, it is being treated by a special crimping process said to give it the characteristics of blooded wool. The resulting fiber, known as "Furfiber," is the product of the Furfiber Co., 370 Seventh Ave., New York. It can be obtained bleached for dyeing in light shades.

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Carpet Specifications

A proposed revision in the Federal Standard Stock Catalog, Section IV, Part 5, DDD-C-61a, covering plain velvet carpets and rugs has been submitted to the carpet industry for criticism by the Federal Specifications Board, Washington. Comments, to be acted upon, must be received by Aug. 4. Copies of this specification are obtainable for 5c. from Superintendent of Documents, Washington.

•

Angora Rabbit Assn. Formed

The American Angora Rabbit Breeders Association was formed recently with office in Chicago. Bruno Schoemann, who also heads the American Dutch Breeders Association, was elected president. Standards for registration of animals were adopted which parallel those of the British U.A.R.C. The association will handle the wool on a commission basis for members in cooperation with C. E. Anderson of Chicago.

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Clothiers Organize

To match the associational organization of the wool manufacturing trades, which is now proceeding under Harold S. Edwards, new president of the National Association of Wool Manufacturers (see page 50), the clothiers are organizing into two groups. One, the Industrial Recovery Association of Clothing Manufacturers, headed by S. H. Curlee of Curlee Clothing Co., St. Louis, comprises most of the large open shop producers. The other, headed by M. W. Cresap, chairman of the board of Hart, Schaffner & Marx, is called the Clothing Manufacturers Association of the U. S. A.

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British Ask Lower Canadian Duties

The first case to be heard by the newly-appointed Tariff Board of the Dominion of Canada will be the application of British wool textile interests for a reduction in Canadian duties on woolen goods from the United Kingdom. A special committee representing the Britisn wool textile interests has already asked the Tariff Board for an early hearing; the committee has forwarded to George Sedgewick, chairman of the board, a brief outlining the case of the United Kingdom trade. The board will begin the hearing of this first case early in June.

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World Wool Production Will Again Be Large

The volume of world wool production this year is expected to be but slightly below the record level of the years 1928 and 1929, according to independent studies conducted by the U. S. Department of Agriculture and the British Empire Marketing Board. The Department of Agriculture reports that 1933-34 marks the fifth consecutive season of large wool clips, but the decline in number of sheep in the United States, Union of South Africa, New Zealand and Uruguay suggests a somewhat reduced output in the future.

Wool Mill News

American Mill of the **Hockanum Mills Co.**, Rockville, Conn., was damaged by fire May 18, the blaze being confined to the roof.

Bradford Mills of American Woolen Co., Louisville, Ky., has recently replaced old machinery with five carloads of new equipment. The plant makes worsted yarns on Bradford system.

Limerick (Me.) Mills which closed on April 22 may be leased for at least six months at $1,000 per month according to court order on May 16.

Rickshaw, Inc., Monson, Mass., is a new corporation formed to take over the business of **Ricketts & Shaw,** woolen manufacturers. Clifford Costine, Lebanon, N. H., is president; C. Freeman Olson, Winchester, Mass., secretary, and Charles L. Ricketts Monson has been named treasurer.

Leaksville Woolen Mills, Thrift, N. C., have secured a building and are installing machinery to be used in processing products from their other mills.

Western Reserve Woolen Co. has been organized and incorporated in Cleveland, Ohio, with a capital of 500 shares. Principals are Thomas H. Garry, H. S. Taylor and C. L. Keerl. Goulder, White, Garry & McCreary, Union Trust Bldg., Cleveland, represent the company.

Thramack Mfg. Co., Pawtucket, R. I., has taken a 30-day option on the **Forest** and the **Pondicherry** woolen mills property here, at Bridgton, Me., and it is hoped that resumption of operations of the two mills will soon be undertaken.

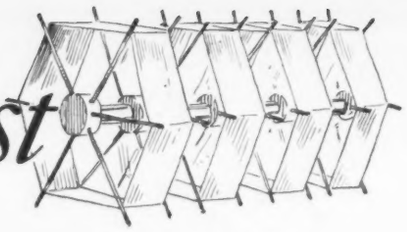
La Crosse, (Wis.) Woolen Mills, have purchased a three-story brick building at Front and King Sts., and will remodel for additional storage and distributing service. Work will cost about $17,000.

Ernest F. Volmsershausen, 88 Finkle St., Woodstock, Ont., formerly of La France Textiles, Ltd., has organized a firm for the manufacture of a new product called the "mohair cushion rug." The product is made on small looms owned by each of the 40 workers.

Woodstock (Ont.) Rug Works, Canada, were recently destroyed by fire. The building contained 12 looms and a quantity of silk yarn for a new line of silk rugs. The industry will be continued by the manager, Urban Schwartz, in a new location.

TEXTILE WORLD'S

Silk Digest



THE silk industry is one of the type which is broken up into sections, geographically. Its major locations are in New Jersey, Pennsylvania, New England and the South. The detailed interests of those sections are not always compatible—and probably never will be. Their major problem, however, is identical.

The Silk Association of America wisely recognized this fact by arranging for an industry-wide conference at which broadsilk manufacturers of the several localities were represented. As the result, a central committee now includes members from the various groups—and a united industry is prepared to capitalize the constructive possibilities of the new national legislation.

Similarly, the association has developed active planning work among the other trade divisions in silk manufacture. Its entire program has been a far-sighted one and promises much for the future.—*Editor.*

"Crystelle," a new non-crushable velvet, developed by Shelton Looms, Sidney Blumenthal & Co., Inc., and worn by Mrs. Franklin D. Roosevelt at Inaugural Ball. "Crystelle," which has a soft, flower-like surface, is being made into a wide range of formal and informal apparel and millinery.

Raw Silk Takes Hectic 40c. Rise

Raw silk continued its upward trend slowly through May, but June brought a hectic rise; prices leaped 40-50c. in 10 days and silk averaged $2.30 per lb. on June 12. While this rise was largely speculative importers regarded the outlook as decidedly improved. Buying was chiefly from broadsilk weavers, with a scattered call from hosiery mills.

Manufacturers still regarded the rise with some skepticism and refused to cover for fall requirements, this despite a shortage of silk in the domestic market. Importers found difficulty at the beginning of this month in filling nearby orders for 20/22s, especially the low grades. Spot orders were plentiful, but few buyers were disposed to cover more than two weeks ahead.

•

Inferior Silk Brings Protest

Charging that inferior quality raw silk now being shipped to this market from Japan is helping to promote the sale of rayon, the Schwarzenbach Huber Co. has written a letter to G. Haga, director of the Silk Conditioning House of Yokohama urging that some remedial steps be taken to eliminate this evil, which, the company charges, has increased in late months. The question of poor quality silk was raised last year, but at that time the complainants were the hosiery manufacturers.

The Schwarzenbach Huber letter states that the poor quality of the silk results in "endless rejections," and adds that the condition is forcing silk mills into greater use of rayon. "The evenness test of the Yokohama laboratories is 6 to 7% higher than we find in the same silk when it arrives here," the letter continues. Stressing the need for a universal raw silk testing standard, the letter urges that conditions be improved so that the original test certificate from the primary market can be final.

•

Plan All-Silk Mark

Adoption of a distinctive mark for silk fabrics which do not contain any other fiber content, is the aim of a European drive projected by the Federation Internationale de la Soie, according to reports from Paris. The Federation has named a committee to develop plans; headquarters will be established in Paris. European silk interests have been considering the plan for some years, the chief handicap having been the question of raising funds for the drive, it is asserted.

•

Fabric Orders Show Increase

Broadsilk demand during May was slightly above that of the same month last year, according to sales executives of leading houses. These men pointed out that May and June normally are quiet months, and they considered the present sales trend as very encouraging. While prices are still uneven, they have steadied and the upward trend is noticeable in the more popular lines. Buyer interest centers on sheers, summer wash flat crepes and prints.

Indications point to a backward season on fall goods. The fall season was well under way this time last year, while this year the trade reports only feeler business. Fall samples are being sought here and there, but the chief mills are holding back on showing their fall lines.

•

Fabric Sales Up 16.4%

An increase of 16.4% in yardage sales of broad silks during April, as compared with the previous month, and an increase of 21.3% as compared with April of last year, is reported by the Silk Association of America, Inc. Stocks in the hands of manufacturers on April 30 were 14.9% lower than on March 31, and 26.5% lower than on April 30, 1932.

•

Spun Silk Quiet

Some call from the woolen and worsted mills was reported by spun silk mills through May but generally speaking spinners had a quiet month. The fall outlook is still a puzzle, and little real fall business is looked for by the yarn houses before mid-July. Meanwhile spun silk prices hold steady, thanks to firm market tone and cautious production. Stocks are low in most mills.

•

Watch Your Contracts!

Pointing out that arbitration has been delayed recently in business disputes in the silk industry because contracts either were not properly signed or did not contain the proper phrases providing for arbitration, the Arbitration Bureau of the Silk Association has issued a statement urging that more attention be paid to contracts. It is urged that the signa-

ture of the buyer be placed on all contracts, to expedite possible arbitration in a possible dispute. The Bureau also points out the advisability that the standard contracts adopted by the Silk Association be used by the trade wherever possible.

•

Urge Silk Unity

The converters division of the Silk Association has adopted a resolution inviting manufacturers of "all fine fabrics" to join with the silk industry, through the Silk Association, in adopting a trade practice code under the proposed National Industrial Recovery bill. The resolution stressed the thought that "rallying under one banner is superior to divided efforts of multiple organizations."

•

Employment Rises 4.6%

Employment increased 4.6% in the silk industry during April as compared with the previous month, and 3.4% as compared with April, 1932, the Silk Association of America, Inc., reports. Broad silk loom employment increased 0.2%, narrow silk loom employment increased 4.5% and spinning spindle employment increased 12.1%, during April, as compared with March. Machinery operations during April increased 4.6% for broad looms, 16.3% for narrow looms, and 30.4% for spinning spindles, as compared with the previous month.

•

Industry Control To End Piracy?

Confident hope that enactment of the National Industrial Recovery legislation will definitely eliminate design piracy, is held by the broadsilk group, including printers, weavers and converters, according to opinions expressed in the trade. This thought was given concrete expression by Sol C. Moss, president of the Design Protection Association and chairman of the converters' division of the Silk Association, who stated that protection of designs will be an important feature of the code being developed by the division to be submitted to the Government through the Silk Association.

•

Paterson Strike Peaceful

A general strike of mill workers in the Paterson, N. J., silk district was called by the Associated Silk Workers for May 22, and the union claimed at the end of the first day that 20 shops, with 1,000 workers had answered the call. The union ordered the walk-out in an effort to effect a 44-hour week with a wage scale of approximately $20 per week. The strike opened peacefully. The union announced that all affected mills would be picketed for the duration of the strike, but despite the picketing there were no arrests on the first day.

•

Silk Association Invites Rayon Group to Join

Rayon yarn producers, fabric weavers and selling agents were the guests of Paolino Gerli, president of the Silk Association, at a dinner in New York, last month, on which occasion Mr. Gerli invited the synthetic fiber groups to become members of the Silk Association. He mentioned the possibility of expanding the Silk Association to include two new divisions, one to represent the rayon weavers and the other for yarn producers.

•

Silk Mill News

Muller Gloria Mills and **Connecticut Lace Works, Inc.**, Norwalk, Conn., will be consolidated under the terms of the will of Richard Muller, owner of both, who died May 13.

Corn Spinning Co., Inc., Willimantic, Conn., a subsidiary of **Willimantic Silks, Inc.**, has filed organization papers, listing Max Stein as president-treasurer and Samuel Marantz as secretary. Paid-in capital is $21,000 in cash.

Georgian Textile Mills, East Rutherford and Bound Brook, N. J., were sold at auction on May 31 by the receivers.

I. Zisblatt & Co., Paterson, N. J., have removed their machinery including 60 looms to Hawley, Pa., where it will be consolidated with another plant of the same company.

Astoria (N. Y.) Weaving Corp., recently organized by W. H. Menke, 18-32 Twenty-fifth Road, Astoria, is planning operation of a silk mill. Dominick Ardini, Astoria, is interested in the company.

Berger & Sherin Mfg. Co., Elmira, N. Y., announces purchase of 24 new looms. Plant is running 24 hours a day.

Century Ribbon Co., Inc., New York, reports a net loss of $62,189 for the quarter ended Mar. 31 compared with a net profit of $32,014 for the similar quarter in 1932.

Onondaga Silk Co., Inc., Syracuse and Ogdensburg, N. Y., has been acquired by new interests represented by B. C. Milner, Jr., and P. A. Vogelman. The former, one time president is now chairman of the board, and the latter once vice-president is now president. The Syracuse plant may be removed to Ogdensburg.

Majestic Silk Mills, Inc., Allentown, Pa., are planning immediate construction of a one-story addition to branch plant at Buena Vista, Va., formerly the mill of the **Buena Vista Textile Corp.**, recently acquired. It will be about 59x100 ft. Additional machinery will be installed. Improvements will also be made to present equipment.

Chambersburg (Pa.) Weaving Co., operating former mill of the **Piedmont Silk Co.**, acquired a few months ago, has made plant improvements, and is now running on a capacity schedule. H. C. Koenig is president.

Dankle, Soprano & Dankle, operating the D. S. & D. Silk Mills, Emaus, Pa., has acquired the former plant and equipment of the **Fleetwood (Pa.) Silk Mills.** It is planned to rehabilitate the plant and resume operations early in June.

Weygadt Mills, Inc., Martins Creek, Pa., are planning rebuilding of one-story mill, recently destroyed by wind storm, with loss approximating $25,000, including equipment.

Bodell Lace Co., Pawtucket, R. I., has permit to erect a two-story addition to its plant. It was said that the addition would mean removal to Pawtucket of activities conducted in Connecticut.

Carl Schoen Silk Corp., New York, has sold its Peninkees Mills property at Valley Falls, R. I., to the Cadillac Silk Co., Pawtucket, R. I., which plans to operate the plant with 300 employees.

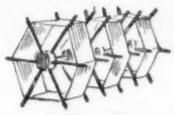
Royal Weaving Co., Pawtucket, R. I., has commissioned Ernest Golden, Providence, to prepare plans for a mill unit. Joseph Ott, Pawtucket, is in charge of the proposed project.

Buena Vista, (Va.) Textile Corp. has been purchased by the **Majestic Silk Mills, Inc.**, Allentown, Pa. The new owners will repair machinery and construct an addition 60x100 feet at Buena Vista.

Buena Vista, (Va.) Throwing Co. is expected to resume operations under new management about July 1. Repairs and improvements are under way.

Martinsville (Va.) Silk Corp. which suspended operations there some months ago, was sold at public auction on May 27, to secure to the holders the payment of certain bonds.

Dan City Silk Mills, North Danville, Va., filed a deed of assignment May 20 for $11,500 in favor of C. G. Holland, trustee, because unable to meet its obligations.



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TEXTILE WORLD'S

Rayon Digest

WE refuse to get all hot and bothered over the question whether rayon weavers should have their own organization, or should join the silk or cotton groups, depending upon their major individual interests.

The National Rayon Weavers Association was formed, not because this group was dissatisfied with its chances for representation in existing associations, but because the proposed industry legislation seemed to demand that each division of industry formulate its own code. Authoritative statements have revealed that membership in the new body involves only those looms operating primarily on synthetic fibers; other looms owned by member-firms are embraced in the other respective associations. The new organization has no desire to compete with, but rather an anxiety to cooperate with, such outside groups.

The position which rayon has won for itself would seem to demand individual representation. The enlistment of the services of former Governor Gardner promises that this representation will be of a high type.—*Editor.*

Tubize Raises Viscose Yarn Prices

As the climax to several weeks of price activity in the cellulose acetate yarn division of the rayon industry, an upward revision of viscose and other yarns was precipitated June 7, when the Tubize Chatillon Corp. made public a new price list, effective June 8. This list brings 150 denier, 40 filament, a key number on viscose yarns, up to 60c per lb., where it stood prior to the April 3 reduction. Similar advances by other producers were expected. The Tubize Chatillon Corp. also advanced prices on its nitro-cellulose yarns. The nitro advance raises Chardonize dull-luster 100 denier to .82c skeins and .87c cones; 125 goes to .70c on both skeins and cones; and 150 to .65c, skeins and cones. The Tubize increases generally average 5c. per lb.; one significant point is that 100 denier has risen to 77c., which is 2c. above the pre-April level.

•

Acetate Prices Move Upward

The summer outlook for acetate yarn prices was decidedly improved in the middle of the current month, thanks to a series of quotation adjustments by leading acetate producers, which helped toward a more stable market. The A. M. Tenney Associates, representing Tennessee Eastman Corp., on June 5 took the lead in a 5c. advance, bringing Tennessee prices substantially to the levels listed by the Celanese Corp. of America. This was followed on June 7 by an advance of DuPont Rayon Co. on its acetates, which also tallied with Celanese, and the Tubize Chatillon Corp. took similar action. The Viscose Co. announced June 7 it would revise its list in line with the new levels.

It is believed that with acetate prices now level on most deniers, this division is in line for more healthy trading. Competition and underselling has been a serious problem in the acetate division for some time, and the readjustment is expected to eliminate the worst aspects of this situation. Under the new lists 75 denier, 24 filament sells at $1.05, 100 deniers are 95c. to $1.00 and 150 deniers are 85c. to 90c.

•

Yarn Call Taxes Capacity of Plants

The yarn industry entered June in a strong position so far as sales were concerned. Prices still left much to be desired, and the air was rife with talk of possible advances, but up to the second week of the month, there seemed little prospect of immediate increases. The chief producers are selling into August, and some companies are turning down August business because orders already booked equal their capacity output. Major demand comes from the weaving trade. Synthetic fabric mills are operating at high pressure, and are pressing their yarn sources for early delivery.

Buying is so active that producers do not believe July will show more than a moderate let-down; indeed, certain companies will be at capacity throughout the month to fill orders already booked Demand from the underwear mills improved at the beginning of June; the only quiet division was hosiery. Orders were chiefly for the medium deniers, such as 150s, 125s, though producers reported a considerable pick-up in call for 75s.

Rayon yarn executives ascribe the strong call largely to the fashion emphasis on rayon woven goods; they thought the silk increase was overestimated as a competitive influence, though they admitted it had a definite bearing on the situation.

•

Courtauld's, Canada, Offers Technical Service

Courtauld's (Canada) Ltd., makers of rayon yarns, have opened offices in Montreal in the University Tower Bldg., St. Catherine St. W., for technical service to the industry. P. Weston-Webb is in charge.

•

Surplus Stocks Shrink

The spirited demand for rayon yarn during May reduced surplus stocks to about 6,500,000 lb., it was estimated at the end of the month. It is not expected that stocks will be allowed to go much further down. Leading firms are operating on "nothing more than a turnover," it is stated. May deliveries were well in excess of the monthly output of the industry, totalling nearly 20,000,000 lb., for all types of synthetic yarn. Active buying is expected throughout the current month.

•

Rayon Weavers Appoint C. W. Dall, Secretary

National Rayon Weavers Association has appointed Charles Whitney Dall as secretary and treasurer. Offices of the association will be opened at 40 Worth St., New York. Mr. Dall has been identified with the merchandising of textiles for 30 years. Starting with the long-established cotton goods firm of Grinell Willis & Co., he afterward became a partner in the successors of that firm, Watts, Stebbins & Co. and Ridley Watts & Co. Since this withdrawal from the firm of Ridley Watts & Co. in 1929, Mr. Dall managed the Oliver Ditson Co., a music publishing house in Boston and was president of F. H. Cabot & Co., agents for blanket mills, which business was discontinued last fall.

•

Industry Welcomes New Rayon Weavers' Assn.

Reaction in the rayon industry to the news that the rayon weavers have organized into the National Rayon Weavers Association, has been decidedly favorable. While it is understood that cooperation with the Gov-

ernment under the National Industry Recovery Bill will be the chief interest of the new body for the present, both mill and yarn groups see the association as an important vehicle for other constructive activities later. Development of new markets for woven rayon fabrics is one field in which the association could do valuable work, it is asserted, particularly in view of the fact that at present the rayon industry has no organization of its own for activities along this line.

•

New Celanese Fabric

A new line of undergarments, made from a fabric in which Lastex and Celanese are combined, has been introduced by M. G. Van Arsdale, Inc. This group, known as "Celaflex," is being promoted by stores as a high style item; the garments are of the lingerie type and supply a complete foundation for summer wear, as a substitute for heavier more restrictive types of undergarments.

•

Yarn Price Trend for 22 Years Shown

The varied history of viscose process yarn prices since the first American-made yarn was quoted by the Viscose Co., on Nov. 11, 1911, is strikingly illustrated in statistics published in the June issue of *Textile Organon,* issued by the Tubize Chatillon Corp. The figures, which are perhaps the most comprehensive yet available to the industry, are presented in two tables. A large table, spanning the period from 1919 to 1933, gives list prices of viscose rayon by key grades and filament counts in dollars per pound. A second smaller table gives the list price of 150 denier, first quality, from 1911 to April 26, of the current year. The table covering grades and filaments is virtually a history of rayon's development in the viscose division. An editorial note points out that "before Sept. 25, 1919, the only denier spun commercially in this country was 150."

The history of 150 denier is typical of rayon's up-and-down career. This yarn was quoted at $1.85 when Viscose issued its first list in 1911. The price climbed upward through the World War period reaching $3.80 in 1917, and continuing to its all-time peak of $6.00 which was reached Feb. 1, 1920. A $2.00 drop came later that year, and, barring a few trivial pickups the trend has been consistently downward ever since. Dollar rayon passed out of the picture in 1930.

•

Silk Drive Seen As Competitive

With indications pointing to favorable action by the Japanese on the plan for a silk promotion campaign here to continue for three years at an approximate annual cost of $500,000, numerous rayon producers are informally discussing the advisability of similar action on behalf of their own fiber. Trade factors are still uncertain as to the possibility of the synthetic fiber industry uniting on such a project, but they stress the need for developing public acceptance of rayon as a quality product. The big output of inferior rayon merchandise in recent years has had a bad effect, especially in the underwear division, it is pointed out, and it is urged that concerted effort be made to improve the quality of rayon merchandise, to offset the competitive force of the projected Japanese silk campaign.

•

Goodyear Tries Rayon for Tires

Experiments in the use of rayon yarn as tire-cord are being conducted by the Goodyear Tire & Rubber Co., of Akron, O., it was disclosed this month. No details as to results of the experiments have been revealed. The news excited considerable interest in the rayon industry because of the possibility that this might open a sizeable new market to synthetic yarns. At present it is estimated that the tire industry consumes about 50,000 bales of cotton annually. The equipment used for the experiments is the continuous process machine developed by William Furness and employed by the Furness Corp., Gloucester, N. J.

•

Glanzstoff Film Shown

Moving picture films depicting all steps in the manufacture of rayon were shown to textile students of North Carolina State College at a recent meeting of the Tompkins Textile Society. The films are the property of the American Glanzstoff Co.

Following the film showing, officers of the Tompkins Textile Society for the ensuing year were elected as follows: President, H. M. Foy, Jr., of Mount Airy; vice president, J. L. Judd, of Varina; secretary and treasurer, J. J. Griffith, Jr., of Kernersville.

•

Rayon Mill News

W. D. Humphrey, Atlanta, Ga., has started a small rayon weaving plant operating five looms at the outset.

Associated Rayon Corp., New York, and subsidiary reports total investment in rayon securities of $47,426,016, with market value on Dec. 31, 1932 of $5,200,000. This is a gain in value during 1932 of $1,300,000. The company reports a net loss of $96,404 for 1932 compared with net income of $108,531 in 1931.

Tubize Chatillon Corp., New York, N. Y., is pushing construction on a one-story addition to mill at Hopewell, Va., 160x260 ft., for which general contract was recently let to the Capitol Construction Co., Atlanta, Ga. New unit will be used as a knitting mill, with removal of machinery from plants of the **Argus Knitting Mills**, Brooklyn, N. Y., and Lebanon, Pa., to that location. First noted company has lately purchased the Argus organization. Last two noted mills at Brooklyn and Lebanon, will be discontinued. Expansion program at Hopewell will cost about $40,000.

Industrial Rayon Corp. has announced that additional machinery and special equipment is being installed at its Covington, Va., plant to increase its annual capacity by 2,700,000 lb. of rayon. The expansion will be completed in July.

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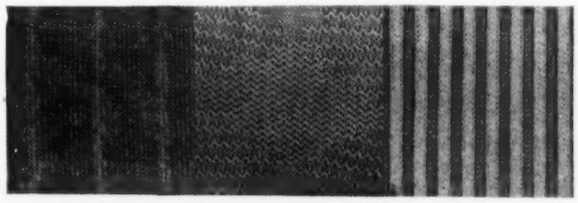

A group of three new novelty knitted fabrics made from dull luster Chardonize yarn, a product of Tubize-Chatillon Corp. Fabric on left is two-tone red and white stripe; center is a bee-hive mesh in yellow; right is clear red and white stripe. They are particularly suitable for sports lingerie which is coming to have new importance in the women's apparel field.

TEXTILE WORLD'S

Knit Goods Digest

WE were not too optimistic when we predicted, last month, adequate associational effort in the several branches of the knitting industry. The three major organizations have lost no time in formulating constructive programs, conforming with the psychology of the new plans at Washington.

We have long been of the opinion that a coordinating committee or council, representing the three divisions—hosiery, underwear and outerwear—could perform a useful service. We do not contemplate that it would interfere with the individual programs of the three associations, but rather that it might serve as a meeting place where broad questions of policy could be discussed and where differences could be reconciled. Certainly, there is enough in common among these industries to make such a plan feasible. Furthermore we believe it would have a good effect in Washington.

We sense that there is no strong support for such a move in the industry just now. This support must first be forthcoming; a forced alliance would be ineffective. We recommend this line of thought to the industry for further consideration.—*Editor.*

Fall Underwear Active

Considerable fall activity in heavyweight underwear lines was reported at the end of May from underwear wholesalers of the Middle West. Orders were accepted on the basis of opening prices, and the general feeling that levels will advance spurred buying to such a degree that some firms were sold up on original contracts within forty-eight hours after opening their lines.

•

Hosiery Prices Advance Unevenly

While the trend of hosiery prices continued upward through May, mills were far from unanimous on this point. Levels were uneven at the end of the month, due to the hesitancy of manufacturers in certain districts, to advance prices. Numerous Southern companies announced increases, these being on both the medium and low-priced lines. May Hosiery Mills, Inc., of Burlington, N. C., announced May 12, an increase of 25c. on all silk full-fashioned hosiery previously set below $4.75 per dozen. Since the advance on hosiery has reflected raw material increases, the mills have been slow to raise the price of rayon hosiery, because yarn levels have changed but little. Increases in price of silk hosiery became more pronounced in early June, some firms advancing their entire lines.

Mills in the Reading, Pa., district, were holding back on price advances, despite the fact that many of the largest companies were operating at capacity. Each firm seemed to be waiting for the other to take the lead in price advance.

•

Fair Seen Aid To Swimsuit Sales

Chicago retailers expect the Century of Progress Exposition to swell the swimsuit demand to unprecedented proportions this summer, and the larger stores have placed exceptionally big orders as a precaution. It is contended that thousands of visitors to the Fair will go to Chicago without bathing-suits, since many come from sections where lake bathing is unknown. Any duplication of the hot summers that Chicago has been experiencing of late will bring volume demand, it is believed. Swimsuit manufacturers report that numerous Chicago stores covered on swimsuit requirements before the recent advances, thus putting themselves in a healthy position for profitable turnover.

•

Knitwear Assn. Moves To Washington, D.C.

Installation of the American Knitwear Manufacturers Association, in its new Washington, D. C. offices, was completed early this month. The association had been located at Belton, S. C., prior to which it was for many years at Utica, N. Y. The new offices are in the Union Trust Building, 15th and H streets, N.W., Washington, and are in charge of Roy A. Cheney, secretary of the association.

•

Ringless Hosiery

Two developments are reported to be underway for the elimination of rings in full-fashioned hosiery. One is under the control of I. C. Eberly, president of Oakbrook Hosiery Mills, Inc., Reading, Pa.; and the other is in the possession of F. O. Pfingst, president of Greensboro (N. C.) Full-Fashioned Hosiery Mills, Inc. Option on the latter has been taken by the Textile Patents Corp., Philadelphia. Both inventions are said to consist of machine attachments, and it is expected that full details will be available shortly.

•

Yarn Men Play Host to Knitters

Executives of hosiery and underwear mills of the Middle West will be the guests of the Chicago Yarn Men's Circle, June 28th and 29th, on the occasion of the 12th Annual Golf Tournament of the Circle which will be held at the Medinah Country Club, Medinah, Ill. The tournament is a yearly event at

Group of Prize Winners *at the annual golf tournament of the Chattanooga (Tenn.) Yarn Association, held May 25-26. Clyde Wilkins, of Champion Knitting Mills, who was not in the picture, won the championship. R. B. Davenport, Jr., of Davenport Hosiery Mills, and George West, of Dixie Mercerizing Co., both of Chattanooga, were second and third respectively. Members of the Chattanooga Yarn Association are: Dave Blevins, Dudley Bryan, F. N. Belk, French Campbell, Ralph Ewing, Claude Gott, Bob Griffith, H. G. Gross, Charley Hall, Stanley Hart, Don Hurlburt, Bill Jackson, Wilbur Lawson, Ed Kimball, R. D. McDonald, Stan McInnis and Tom Moore.*

which the club of fourteen yarn men plays host to the knit goods executives. The members of the Chicago Yarn Men's Circle are: O. J. Caron, president; C. Walter Seidel, secretary; Fred W. Frank, treasurer; Wm. D. Benson; Art. H. Emerson; Oscar Heineman; M. Arnold Henderson; Jas. A. Holt; Geo. T. Hutchinson; Frank W. Kingsley; C. M. Patterson; Chas. F. Peffer; Wm. R. Rietheimer, and Wm. J. Yates.

•

Hosiery Union Asks Non-Union Parley

Non-union full-fashioned hosiery manufacturers were invited to confer with the American Federation of Full-Fashioned Hosiery Workers on a plan for regulation of working conditions, in a letter sent last month to William Meyer, president, National Association of Hosiery Manufacturers, by Emil Rieve, union president. Mr. Rieve suggested that the existing national agreement be made the basis of an industry-wide agreement in line with the Government's industry control plan. In his answer, Mr. Meyer said that "about 10% of those employed in the hosiery industry are affiliated with trade unions" and he added that the chosen representatives of these workers should be given proper consideration."

•

Sportswear Guild Fights Trade Abuses

Active steps toward elimination of various trade abuses such as unsound price policy, design piracy, unreasonable returns and the conflicting selling policies and terms now employed, are being planned by the knitted sportswear division of the National Knitted Outerwear Association. The manufacturers of knitted sportswear have formed the Knitted Sportswear Guild, affiliated with the National Association, and the Guild held numerous organization meetings in New York during May.

The committee reported at a meeting May 26 that it was preparing an organization agreement with regulations pertaining to returns of merchandise, style piracy, uniform opening dates, hours of labor and other vital questions.

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Union Proposes Loans to Mills

A plan by which loans can be made to full-fashioned hosiery mills through deductions from payrolls of workers, was provided for in a resolution adopted at a May meeting of the executive committee of the American Federation of Full-Fashioned Hosiery Workers in Philadelphia. The plan stipulates that the manufacturers may deduct up to 70% of the amount of their payrolls if they can submit convincing proof that they are in need of financial aid. The amount of

KNIT GOODS IN THIS ISSUE

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Knitting Mill News

Mission Hosiery Mills, Los Angeles, Calif., have begun work on a one-story addition to three units, totaling about 150x170 ft., to cost over $50,000.

Lawler Hosiery Mills, Carrollton, Ga., are constructing a hosiery mill, two stories and basement, 60x140 ft., with dye house and boiler room. Plans were prepared by F. S. Gary, Atlanta, Ga.

Richmond Hosiery Hills, Rossville, Ga., are installing 100 additional Banner split foot 240-needle half hose machines in their plant at Daisy, Tenn.

Gilbert Knitting Co., Little Falls, N. Y., is remodeling and improving former mill of the Bailey Knitting Co., Fort Plain, N. Y., recently acquired for a branch.

Majestic Knitting Mills, 39 West Thirty-Second St., New York, N. Y., have leased a floor in building at 22 West Thirty-Second St., and will occupy for new plant.

Mercury Knitwear Mills, Inc., New York, N. Y., recently organized by Edwin E. Krikerian, 501 West 178th St., New York, and Hagop Kurklian, North Bergen, N. J., plans operation of knitting.

Mount Mitchell Hosiery Mills, Inc., Asheville, N. C., began operation in the plant formerly occupied by the **Asheville Knitting Co.,** on May 30 with 50 operatives on men's half-hose. Machinery of the Asheville Knitting Co. was augmented by some other purchased. Maxwell Ellis, president of Ellis Hosiery Mill, Philadelphia, is president.

W. A. Harriss & Son, operators of a men's fancy hosiery mill at Burlington, N. C., has installed 15 new machines.

Hudson Silk Hosiery Co., Charlotte, N. C., is installing 17 additional full-fashioned knitting machines and a complete system of air conditioning in the knitting room. These improvements, together with additional throwing equipment recently installed, represents an investment of $192,000. The central station humidifying system was designed and installed by the Carrier Engineering Corp. through its Charlotte office.

Scott Knitting Co., Graham, N. C., has been organized with authorized capital stock of $100,000 by Don E. Scott and Irene A. Berry, of Graham, and W. H. Holderness, of Greensboro, N. C.

Victor Hosiery Mills, Hendersonville, N. C., is being organized by F. T. Whitlock, retiring hosiery manufacturer of Henderson county, and will be housed in the old Wetmur building.

Pilot Full-Fashioned Mills, Valdese, N. C., has completed the second installation of a Carrier humidifying system in its two story addition.

Owen Osborne Mills, Philadelphia, Pa., have begun superstructure for new one-story hosiery mill at Gainesville, Ga., for which general contract recently was let to A. K. Adams & Co., Atlanta, Ga. Structure will be owned by local interests and occupied by company.

Siliko Hosiery Co., Philadelphia, operating 36 full-fashioned machines, has been bought by the **Tabor Hosiery Mills.** The latter company was recently incorporated in Delaware by Albert Staudt previously superintendent of Siliko.

Jac Feinberg Hosiery Mills, Rock Hill, S. C., plans enlargement of the plant and the increase of working personnel from 50 to 200.

Rock Hill (S. C.) Hosiery Building Corp. will build an addition to its plant.

Silver-Knit Hosiery Corp., Kingsport, Tenn., is moving its equipment and machinery to High Point, N. C., where it will continue the manufacture of men's hose.

Walter Fred Hosiery Co., Nashville, Tenn., is now in charge of J. D. Goodpasture, as receiver. Mr. Goodpasture is also chairman of the board.

Southern Silk Mills, Spring City, Tenn., has purchased eight new machines, making a total of 20 machines.

Baker-Moise Hosiery Mills, Dallas, Texas, will install new machinery and increase capacity of the plant 50%.

Pannill Knitting Co., Martinsville, Va., has purchased a three-story plant, 40x75 ft., heretofore owned by J. B. Sparrow, Martinsville, and is said to be planning to remodel and occupy for expansion. Company recently completed the construction of a three-story extension, 50x120 ft., now in service.

TEXTILE WORLD'S

Processing Digest

THE National Association of Finishers of Textile Fabrics is all set to go places. Its selection of Albert L. Scott as president insures an able and constructive administration. We cannot imagine a happier choice.

The contribution of past-presidents of the association must not be forgotten. Men of the type of W. L. Pierce, Henry B. Thompson, and others, have kept the organization a going concern, often against discouraging odds.

The close agreement which now exists between job finishers and corporation finishers is one of the many promising features of the new set-up. Such harmony has not always existed in the past; without it, no real progress could have been expected for the future. Its realization represents a fine accomplishment on the part of the officers and directors.—*Editor.*

Finishers Organize Traffic Conference

The Southern New England Finishers' Traffic Conference has been organized, with headquarters in Providence, by textile finishers with the object of bringing all transportation problems of the industry under a single head. George R. Nuzum, head of the Textile Traffic Association, is chairman; H. D. Arnold, traffic manager of the American Printing Co., Fall River, vice-chairman; and Floyd D. Spencer, traffic consultant, secretary and treasurer.

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Apponaug to Produce Anti-crease Fabric

Announcement was made last month that the Apponaug Co., Apponaug, R. I., has been licensed to produce anti-crease fabrics by the Tootal, Broadhurst & Lee process. American finishers previously licensed to use this method (TEXTILE WORLD, April, 1933, p. 66) are Pacific Mills and Sayles Finishing Plants, Inc.

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Aqua-Mechanical Decortication of Flax

A new method for preparing flax fiber from the straw has been proposed recently by Franklin E. Smith, of Lancashire, England. This method, which is described as a process of aqua-mechanical decortication, is said to permit extraction of the fiber in 10 hr., instead of the ordinary retting period of six or seven days, and to yield a flax purified to a higher degree than is usual. No details of the process have been made public other than the statement that degumming is carried further than in normal retting and that no chemicals are employed which will deteriorate the fiber. Results of tests quoted in various English textile publications indicate that the yield of flax from straw and of yarn and fabric from the fiber is higher than with other commercial flaxes.

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A.A.T.C.C. Notes

Research as a textile investment was recommended to the American Association of Textile Chemists & Colorists by Dr. Robert E. Rose, president of the association, at the spring meeting of the Piedmont Section held in Greensboro, N. C., May 13. Technical papers were read by G. P. Feindel, Greenville, S. C., on the "Treatment of Water for Boiler & Textile Purposes"; J. H. Easley of Rock Hill Printing & Finishing Co., on "Some Color Shop Problems in Cotton Printing"; L. M. Boyd of Scholler Bros. Co., on "Hosiery Dyeing & Finishing"; and S. H. Williams of General Dyestuffs Corp., on "New Developments in Application of Fast Colors."

Dr. Rose also spoke at the spring meeting of the Southeastern Section held in Columbus, Ga., on May 20, taking as his subject the "Dyestuffs Laboratory and Cotton Dyeing." A. H. Leonard of Valway Rug Mills, LaGrange, Ga., discussed the "Processing and Dyeing of Chenille Yarns."

At a meeting of the New York Section held May 26 in Paterson, N. J., the uses of the Projectorscope (TEXTILE WORLD, February, 1933, p. 66) were discussed and demonstrated by Eric Sinnat, of Julius Kayser & Co., Brooklyn, N. Y., and J. A. Scheick, of Bausch & Lomb Optical Co., Rochester, N. Y. An election of officers for the ensuing year was held, at which the following were re-elected: chairman, Henry F. Herrmann, General Dyestuff Corp.; vice-chairman, Ephraim Freedman, R. H. Macy & Co.; secretary, Thomas R. Harris, Herrick & Voigt; treasurer, John J. Sokolinski, Arabol Mfg. Co.

The Philadelphia Section held its annual outing and dinner on May 27 at the White Marsh Valley Country Club, Chestnut Hill, Philadelphia.

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Waterproofing Compound

For imparting a water-repellent finish to cotton, rayon, wool and silk mixture fabrics, General Dyestuff Corp., 230 Fifth Ave., New York, has announced a new compound known as Ramasit K conc. This product is a white paste which is diluted with water and applied by the one-bath method without addition of aluminum salts or other chemicals. Advantages cited for Ramasit K conc. are that it imparts a full, soft hand; does not alter the porosity of the fabrics; can be employed in conjunction with dextrin or other finishing agents; and forms a staple emulsion which prevents danger from spots.

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Solvent and Penetrant

Texinol, a new solvent and penetrating agent, has been brought out recently by the Texinol Chemical Co., Bush Terminal Bldg., No. 1, Brooklyn, N. Y. Uses for which this product is recommended by the manufacturer include the following: as an assistant in peroxide bleaching to obtain a superior white; as a scouring and fulling agent in wool processing; and as a wetting or penetrating agent in dyeing, particularly with vat colors. It is stated that Texinol has good rinsibility, imparts a desirable soft hand to the goods and aids level dyeing.

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Sulphonated Oil

A new type of sulphonated oil, under the designation Sulfo Turk C, has been announced recently by Glyco Products Co., Inc., Bush Terminal, Brooklyn, N. Y. This product is said to give clear solutions with mineral oil, which in turn form milky emulsions with water. It is stated that these emulsions foam and froth less than those made with ordinary sulphonated oils. Another advantage cited for this product is its resistance to hard water.

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New Dyestuffs

E. I. duPont de Nemours & Co., Inc., announces the following new product:

Sulfogene Fast Black CL, a sulphur color which is similar to the Sulfogene Carbons but is superior in resistance to chlorine, acid cross-dyeing, steaming, and ironing; also it is less likely to

tender goods on prolonged storing than are the ordinary sulphur blacks.

General Dyestuffs Corp. announces the following new products:

Celliton Violet R powd., a dyestuff which makes it possible to produce reddish violet shades on cellulose acetate which can be readily discharged to white; this color is also suitable for print-on styles; dyeings possess good fastness to light; good to very good fastness to washing and fulling; and very good fastness to perspiration, water, scrooping, and acid.

Fastusol Black VE, a fast-to-light direct dyestuff similar in shade and properties to Benzo Fast Black LA, but possessing the advantage that it does not reduce in boiling, even when dyeing unbleached cottons.

Diazo Brilliant Green 3GA, a developed color, which diazotized and developed with Developer ZA, produces on cotton or rayon bright yellowish green shades of very good fastness to washing; it discharges to a clean white with Rongalite C.

Alizarine Direct Blue AGG, a direct dyeing Alizarine color of very good fastness to perspiration, water, and salt water; and excellent fastness to light.

Three new Rapid Fast colors: namely, Rapid Fast Orange GH Powd., Rapid Fast Brown IRH Powd., and Rapid Fast Olive Brown IGH Powd.

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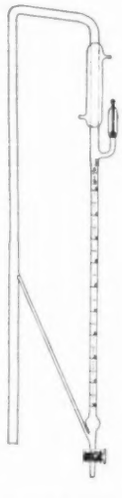
Estimation of Water in Wool



A routine method for estimating the amount of water in wool is described by C. O. M. Steward in a recent issue of the *Journal of the Textile Institute*. A 30-gram sample of a finished top, for example, is taken from a finisher box and weighed rapidly on an automatic balance sensitive to .025 g. After weighing, the top is transferred to a 2-liter conical flask, and about 300 c.c. of dry perchlorethylene is introduced. The flask is now closed by means of the special distillation tube shown in the accompanying sketch, the cork carrying the tube being painted with collodion to obviate possible leaks. By means of a pipette, a little perchlorethylene is introduced through the hole in the side of the valve of the distillation tube in order to seal the side-tube syphon. The flask is now transferred to an electric hotplate, the condenser is connected to the water supply, and distillation carried out until all the water has been collected. The flow of vapor and liquid is continuous in direction, and the water is carried along to the graduated tube, the whole of the apparatus being swept out by a current of vapor. Owing to the situation of the condenser, the condensed water is cold and its volume may be read off immediately. The whole of the water is removed from the wool in 30 min. from the time of commencement of heating. If the glass distillation tube is cleaned periodically with chromic acid, and with alcohol and ether after each estimation, separation of water takes place cleanly and rapidly in the graduated tube.

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Finishing Activity

Figures released by the National Association of Finishers of Textile Fabrics show printing operations at 86% of capacity in May, 84% in April, 64% in March and 90% in February. Other percentages are white and dyed combined, 82% for May, 67% for April, 54% for March and 57% in February; fast black, 41% in May, 22% in April, 15% in March and 16% in February; logwood and sulphur black, 42% in May, 36% for April, 21% in March and 25% for February.

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Albert Scott Heads Finishers Association

Albert L. Scott, president Lockwood Greene Engineers, Inc., was elected president of the National Association of Finishers of Textile Fabrics at a meeting of this organization held in New York, on May 26. Selection of Mr. Scott for this office ties in with the plans of the finishers for the betterment of conditions within their own branch of the textile industry and for cooperation with the national Government in its program for general business recovery. Mr. Scott, while not a finisher, has had close contact with the textile industry for many years. As an organizer, he made an enviable reputation for himself during the war as a Brigadier-general in the Quartermaster Corps of the Army. Recently he has spent considerable time in Washington contacting with various officials who will have to do with the new industrial program.

Mr. Scott was born in Cleveland, Ohio, in 1878. After graduation from Brown University in 1900; he went with Lockwood, Greene & Co.; was elected a director in 1903; treasurer in 1905; vice-president in 1920; and president in 1926. He has been president of Lockwood Greene Engineers, Inc., since July 1, 1928, and will continue to hold this position in addition to assuming the duties of his new post.

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Processing Plant News

Crystal Springs Bleaching & Dyeing Co., Assonet, Mass., will be devoted to novelty printing if pending negotiations are consummated.

Walker Dyeing & Bleaching Co., Chelsea, Mass., has been organized with capital of $50,000, to take over and succeed to the **Walker Brothers Dyeing & Bleaching Co.** Howard Walker is president.

Clover Dyeing & Printing Works, Paterson, N. J., have been incorporated and are negotiating for plant. Emanuel Shavick is counsel.

Colonial Print Works, Inc., Paterson, N. J., have been incorporated and are negotiating for plant. Peter Hafstra is counsel.

Silk Dyers & Printers Trading Corp., Paterson, N. J., has been placed in hands of Ferdinand Delephena, receiver. The corporation was formed last fall for the purpose of stabilizing the dyeing and printing industry.

Western North Carolina Textile Co., Inc., Asheville, N. C., will operate a plant at 26 Banks Street for cloth dyeing and printing and for dressmaking.

Hanes Dye & Fnishing Co., Winston-Salem, N. C., has awarded contract to Frank L. Blum Co., for the construction of an addition to its building on Chatham Street. Additional manufacturing equipment will be installed.

Bell Thread Co., Ltd., Hamilton, Ont., Canada, is extending its dyehouse to provide additional facilities for the dyeing of yarns in skeins. Additional dyeing machines are to be installed.

Universal Silk Dyers, Ltd., Lindsay, Ont., Canada, have been purchased by Knitters, Ltd., Marieville, Que., from the liquidators. J. D. Ouelette, president of Knitters, Ltd., states that in addition to piece-goods dyeing, the Lindsay plant will be equipped to spin and dye worsted yarns.

QUOTATIONS

At close of business, June 1, 1933.

Prices cover average qualities unless otherwise stated.

Cotton Goods

	June 1	May 1	May 25 1932
PRINT CLOTHS			
27 -in., 64x60, 7.60	4	3 13/16	2 7/8
38½-in., 64x60, 5.35	5½	4¼	3
39 -in., 68x72, 4.75	6¾	5	3½
39 -in., 72x76, 4.25	7⅛	5½	4
39 -in., 80x80, 4.00	7½	4¾	4⅛
BROWN SHEETINGS			
36-in., 56x60, 4.00	6¼	4¾	3¾
36-in., 48x48, 5.00	5	3⅝	4⅛
37-in., 48x48, 4.00	6¼	4½	3½
MISCELLANEOUS			
Drills, 37-in., 3 yd.	7½	5¼	4½
Denims, 2.20	11½	9⅛	8⅛
Tickings, 8 oz.	12	10½	11
Standard prints	6½	6	6¼

Cotton Waste

Peeler comber	8.50c
Peeler strip	7.50c
White spooler (single)	4.75c

Cotton Prices

Spot Cotton at:	June 1	May 1	For Month High	For Month Low	1932 May 25
New York	9.25	8.25	9.35	8.25	5.75
New Orleans	9.10	8.00	9.17	8.00	5.72
Liverpool	6.28	5.73	6.44	5.73	4.51

FLUCTUATIONS OF FUTURES

	Closed June 1	For Month High	For Month Low	Closed May 1	Net Change
June	9.11	9.17	8.14	8.14	+0.97
July	9.18	9.20	8.21	8.21	+0.97
Aug	9.24	9.26	8.27	8.27	+0.97
Sept	9.37	9.37	8.34	8.34	+0.97
Oct	9.42	9.45	8.42	8.42	+1.00
Nov	9.48	9.53	8.49	8.49	+0.99
Dec	9.57	9.62	8.57	8.57	+1.00
Jan	9.62	9.70	8.68	8.68	+0.94
Feb	9.71	9.77	8.75	8.75	+0.96
Mar	9.81	9.84	8.87	8.82	+0.96
April	9.88	9.92	0.00	....	.....

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

	F.o.b. New England Middling	St. Middling
1⅛-in	11.68c	12.68c
1 3/16-in	13.18c	14.18c
1¼-in	16.18c	18.18c

FOREIGN COTTONS

Alexandria Exchange, June 1		Change
July, Sak	15.32	+1.85
June Uppers	13.10	+1.32
May-June Shipment c.i.f. Boston (Tariff not included)		
Fully good fair Sak (No. 38)	15.20	+1.25
Fully good fair to good Uppers (No. 10) (By Anderson, Clayton & Co.)	13.80	+ .90
India Rough, Calcutta Camilla	8.50	
Peruvian Tanguis Strict Middling	20¾	
China Tientsin No. 1	9¼	

Prices quoted as of June 1 on this page show a marked gain over May 1 in virtually all items. Cotton goods are about 30% up in the month, cotton and yarns 10 to 15%, raw silk 6%, wool 30%, tops 25%, and worsted yarns 25 to 30%. Rayon was firm.

Cotton Yarn

CARDED (Average Quality)
Double Carded 2c.—4c., higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.17½	20s	$0.20½
10s	– .18	24s	– .22½
12s	– .18½	26s	– .23½
16s	– .19½	30s	– .24½

TWO-PLY SKEINS AND TUBES

8s-2	$0.18	20s-2	$0.21
10s-2	– .18½	24s-2	– .23
14s-2	– .19½	30s-2	– .25
16s-2	– .20	40s-2	– .30

SINGLE WARPS

10s	$0.18½	20s	$0.21
14s	– .19½	24s	– .23
16s	– .20	30s	– .25

TWO PLY WARPS

8s-2	$0.18½	20s-2	$0.21½
10s-2	– .19	24s-2	– .23½
14s-2	– .20	30s-2	– .25½
16s-2	– .20½	40s-2 ordin.	– .30½

HOSIERY CONES (Frame Spun)

8s	$0.18½	18s	$0.21
10s	– .19	20s	– .21½
12s	– .19½	22s	– .22½
14s	– .20	24s	– .23½
16s	– .20½	26s	– .24½

COMBED PEELER (Average Quality)
TWO-PLY — (Knitting Twist) Cones

20s-2	$0.28½	50s-2	$0.40
30s-2	– .31½	60s-2	– .46
40s-2	– .36	80s-2	– .67

WARPS, SKEINS AND CONES
TWO-PLY — (Warp Twist)

20s-2	$0.29	50s-2	$0.41
30s-2	– .32	60s-2	– .46
36s-2	– .35	70s-2	– .57
40s-2	– .37	80s-2	– .67

SINGLES

14s	$0.26	38s	$0.36
20s	– .27½	40s	– .37
28s	– .31	50s	– .41
30s	– .31½	60s	– .46

MERCERIZED CONES — (Combed, Ungassed)

30s-2	$0.41	60s-2	$0.55
40s-2	– .45	80s-2	– .80

Raw Silk

Prices Nominal	13/15 White	20/22 White	20/22 Yellow
Super Grand, 87%	$1.93	$1.86	$1.85
Special Grand, 85%	1.88½	1.80	1.77
Grand XX, 83%	1.82½	1.77	1.74
Special Crack, 81%	1.77	1.75	1.72
Crack XX, 78%	1.73	1.72	1.69
Extra, Extra 73%	1.71	1.69	1.67
Best Extra, 68%	1.65	.....	.....

RAW SILK EXCHANGE

	May 1	June 1	For Month High	For Month Low	May 24 1932
June	1.62	1.58	1.63	1.40	1.19
July	1.64	1.59	1.63	1.40	1.20
August	1.63	1.58	1.64	1.39	1.24
September	1.63	1.59	1.63	1.40	1.25
October	1.63	1.58	1.63	1.40	1.25
November	1.64	1.60	1.64	1.39	1.25
December	1.63	1.60	1.63	1.39	1.25
January	1.64	....	....	....	....

Silk Yarns

Hosiery tram 5thd, Japan, 85%	$2.52½
Hosiery tram, crack XX, 78%	2.37½
60/2 spun silk	2.40

RAYON WASTE

Thread	$0.11-0.14

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne.	$0.27 –$0.28	¾ blood	$0.31 –$0.32
Fine clthg.	.21 – .22	¼ blood	.31 – .32
½ blood	.27 – .28		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.63 –$0.65
California, Northern	.57 – .58

MONTANA IDAHO, WYOMING (CLEAN)

Staple fine	$0.66 –$0.68
Staple ½ bld	.62 – .65
Fine and fine medium (original bag)	.62 – .65
¾ blood	.58 – .60
¼ blood	.55 – .56

EASTERN SCOURED PULLINGS

A.A.	$0.65 –$0.67	B-Super	$0.54 –$0.58
A-Super	.59 – .60	C-Super	.51 – .52

CARPET WOOL (Nominal)

Aleppo (clean)	$0.17 –$0.18
Sining	.11½ – .12
China filling (clean)	.15 – .17

Tops and Noils

TOPS — BOSTON

Fine (64-66s)	$0.88 –$0.90
Half-blood (60-62s)	.84 – .85
Aver. ¾ blood (56s)	.80 – .81
¼ blood (50s)	.75 – .77

NEW YORK TOP FUTURES

	Closed May 1	For Month High	For Month Low	Closed May
June	81.00	79.00	66.30	65.30
July	81.00	79.50	66.40	65.40
September	81.40	79.60	67.00	67.00
December	81.80	80.00	68.00	68.00
January	82.00	80.00	68.20	68.20

TOPS — BRADFORD, ENG. (June 1)

Fine (64s)	25¼d	¾ bld. (56s)	18½d
½ bld. (60s)	23¼d	¼ bld. (50s)	12½d

NOILS — BOSTON

Fine	$0.47 –$0.48	¾ bld	$0.37 –$0.40
Half-bld	.42 – .44	¼ bld	.32 – .35

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s	$0.85 –$0.89	2-36s 58s	$1.12 –$1.17
2-30s 48s	.95 – 1.00	2-40s 60s	1.18 – 1.23
2-30s mixes	1.35 – 1.40	2-50s 64s	1.35 – 1.40

ENGLISH SYSTEM KNITTING

2-20s 44s	$0.75 –$0.80	2-20s 60s	$0.95 –$1.10
2-20s 50s	.95 – 1.00	2-20s 64s	1.15 – 1.20

FRENCH SYSTEM

1-26s 64s	$1.05 –$1.10	2-40s 64s	
1-30s 64s warp	1.15 – 1.20	Zephyrs	$1.30 –$1.35
		2-50s 66s	1.45 – 1.50

Domestic Rayon

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.10	150	24-40	$0.55
75	30	.87	150	60	.69
100	40	.72	300	44	.45
125	36	.60			

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Denier	First Qual.
75	$0.87 –$0.97	150	$0.60
100	.72 – .82	175	.60

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.15 –$1.20	100	$0.95 –$1.00
60	1.05	120-125	.90 – .95
75	1.00 – 1.05	150	.85– .90

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.45	100	75	$0.85
75	60	1.05	150	112	.75